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ABSTRACT

The 125th meeting of the Association of Research Libraries (ARL) reviewed the mission statement, goals, and objectives of the Association. Major themes from the review process included the effect of technology on access and preservation; the critical need to develop measures of library effectiveness and performance; and the importance of strengthening external relations with others in the higher education arena. An opening reception and plenary session began the meeting (with speeches by Cornelius Pings, Charles Oppenheim, and John Black). The first session included the following papers: "Introduction" (Donald Koepp); two separate papers both entitled, "Cooperation Between Libraries and University Presses" (Lisa Freeman, Robert Grant, respectively); and "Research Libraries and Scholarly Publishers: Some Notes Toward More Effective and More Honest Relationships" (Marshall Keys). The second session explored performance measures in a networked environment: "Introduction" (Nancy Eaton); "What Does Progress Look Like? How Do We Know We're Making it?" (Douglas Bennett); and two separate papers both entitled, "Performance Measures as Incentives for Redesigning Access and Delivery Services" (William Crowe, Nancy Kaplan, respectively). The luncheon speakers addressed the meaning of leadership in the new workplace (Kent Hendrickson and Carole Leland). The third session reviewed the potential and limitations of electronic technology as a preservation strategy: "Introduction" (Betty Bengtson); "Electronic Technology as a Preservation Strategy" (John Van Bogart); and "Enduring Access: Issues and Strategies" (M. Stuart Lynn). The fourth session addressed the challenges inherent in managing the transition to international networked collections: "Introduction" (Dale Canelas) and two separate papers both entitled, "Improving Access to Global Information Resources" (Burkart Holzner, Donald Riggs, respectively). The fifth program session addressed new research directions and federal funding opportunities (James Neal, Thomas Kalil, Yi-Tzuu Chien, Laura Breeden, and Jane Bortnick-Griffith). Appendices include reports on the ARL business meeting, ARL activities from May 1994-October 1994, and an ARL attendance list. (SWC)

RENEWING THE ARL AGENDA

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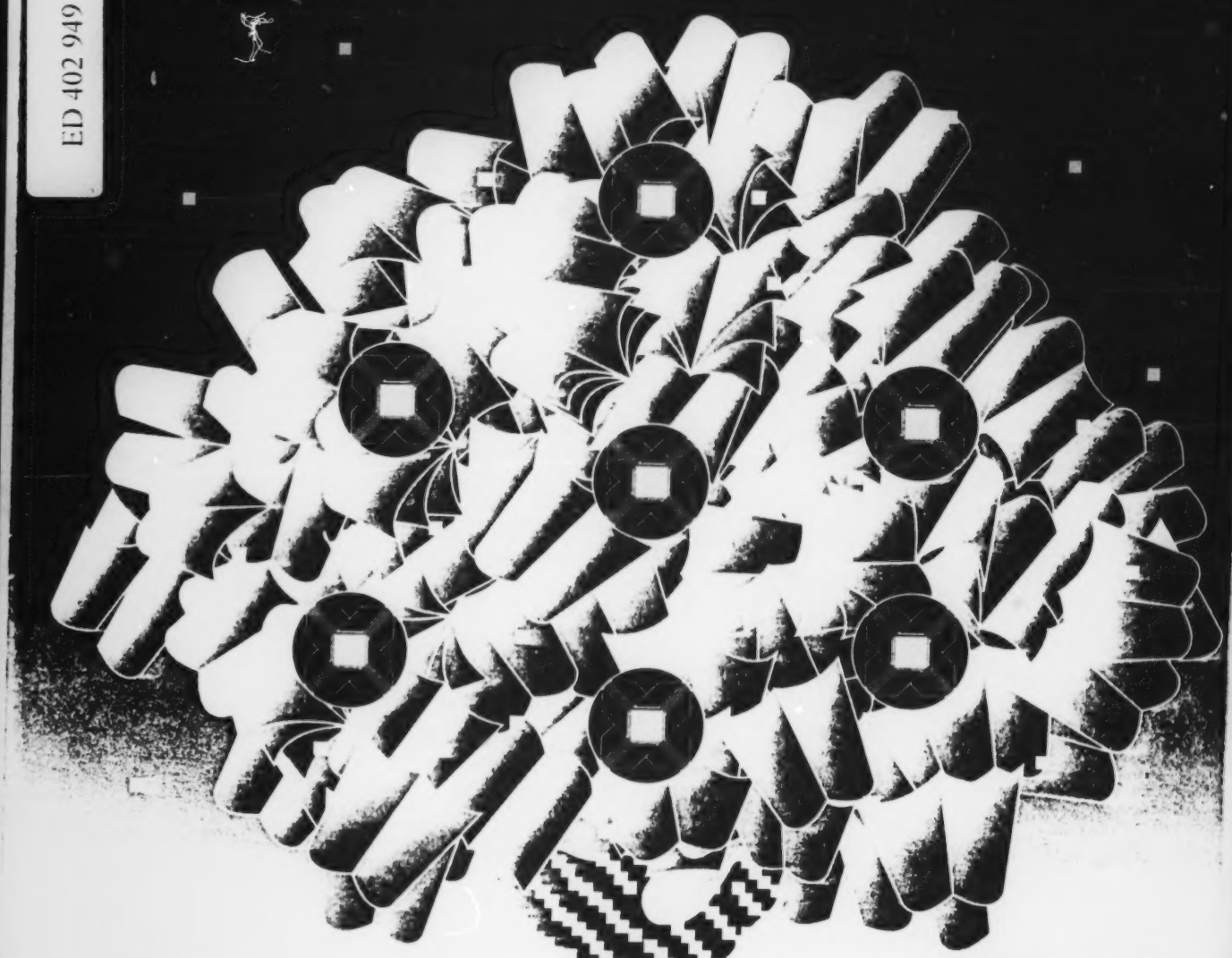

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RENEWING THE ARL AGENDA

ASSOCIATION OF RESEARCH LIBRARIES
PROCEEDINGS OF THE 125TH ANNUAL MEETING

WASHINGTON, D.C.
OCTOBER 19–21, 1994

JOHN BLACK, PRESIDING

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FOREWORD

RENEWING THE ARL AGENDA

Like many organizations, ARL recognizes the need to review, on a regular basis, the appropriateness of the activities in which it is engaged. This is especially true during turbulent periods of rapid change. Current efforts to renew the ARL agenda were initiated by the Board of Directors at the end of 1993 and have included a review of the mission statement, goals, and objectives of the Association. The results of this review will be presented to members during this meeting.

Major programmatic themes emerging from this process include the effect of technology on library operations and services such as access and preservation; the critical need to develop measures of library effectiveness and performance; and the importance of strengthening external relations with other key players in the higher education arena, such as the Association of American Universities and the American Association of University Presses.

The nature of change in scholarly communication and its consequent effect on library services and operations, such as interlibrary loan, has mandated the need to develop new measures of library performance. The second program session explores performance measures that may provide an incentive and impetus for the redesign of library services in a networked environment.

Today's workplace is a very complex environment, and managers and administrators may need a different set of skills from those that were effective in the past. The luncheon speaker focuses on the meaning of leadership under these changing conditions. The third program session offers a review of the readiness of electronic technology as a preservation strategy, outlining the potential and limitations of its use.

In the fourth program session a panel addresses the challenges inherent in managing the transition to national, North American, and, ultimately, international networked collections.

The final program session covers new federal funding programs as they relate to research library interests and concerns. New strategies for funding research library projects are discussed, as well as the need to articulate a research agenda for academic and research libraries in the context of the National Information Infrastructure.

The process of renewal is designed to keep the agenda of the Association vital and dynamic. By highlighting ARL's current and prospective responses to the many issues facing its members and the profession at large and keeping efforts tightly focused on these themes, the Association will be best able to assist its members in shaping and influencing the key elements of their environment.

Opening Reception & AAU/ARL Briefing

Implementing the Follett Report

Cornelius Pings
Association of American Universities

As you know, AAU undertook a major initiative in research libraries about two years ago, working closely with and greatly assisted by ARL. From the point of view of AAU, that project had the dual purpose of educating our membership about the critical issues confronting research libraries and scholarly communication and developing an action agenda for subsequent work by AAU.

It is clear to me that the project has succeeded ably in both objectives. Our discussion of the reports of the three project task forces last spring engaged the presidents fully and resulted in a clear recognition that there were important actions for them to take individually and collectively.

We always intended the report of the project to be a starting point, not an end point, and the formation of the AAU/ARL steering committee is the mechanism AAU and ARL have chosen to begin the implementation phase of this long-term effort. Co-chaired by Myles Brand, President of Indiana University, and Jerry Campbell, University Librarian at Duke University, this committee will oversee and encourage a wide range of activities designed to test and implement the recommendations of the AAU Research Libraries project. I can testify to the intensity of interest by the five presidential members of that group, and I am sure the five librarians bring an equal measure of commitment.

The group met for the first time this past Monday in Chapel Hill as part of the AAU fall membership meeting. The group agreed to launch a number of initiatives and support others already underway. There is not time here to go into much detail—and indeed, the committee will have to confer again soon to work out additional details.

Let me highlight a couple of initiatives:

The steering committee agreed that intellectual property issues are fundamental to much of what will be done concerning scholarly communication in the electronic environment and Peter Nathan, Provost at University of Iowa and chair of the AAU project's Intellectual Property Task Force, has agreed to head a newly constituted working group which will continue to wrestle with these issues. Mr. Nathan discussed these issues recently at two AAU meetings of chief academic officers (who met recently for the first time) and of graduate deans. In both cases, a great deal of interest was generated by the audience.

The steering committee also favorably reviewed the proposals stemming from a meeting held at Columbia University of librarians, faculty, university press officers, and other university administrators. We hope that a number of interesting projects will soon be underway to explore new options for university and academic society-based publishing and other activities.

In addition to the AAU/ARL committee, AAU has formed a committee on information technology to follow the myriad federal legislative and regulatory actions governing information networks. That group, chaired by Joe Wyatt of Vanderbilt University, will work closely with the AAU/ARL steering committee in trying to identify and advance the interests of universities, their faculties, and students, in the emerging national information networks.

I think our two associations are now organized and energized to work collaboratively on some very important and exciting new initiatives in scholarly communication, as well as information production and management. This would not have happened without the foresight of Duane Webster and the expert and untiring contributions of his very able staff.

I understand from John Vaughn that a number of you discussed how to educate faculty and administrators on campus about the economic, legal, and academic issues involved in thinking about how to manage information in the electronic environment. Let me close with a few observations that draw on my former life as provost. I urge you to think strategically and politically. Strategically, it is important that you develop clear arguments for why it is in the university's self-interest to reexamine how it applies copyright provisions, how it develops information management policies, and how it weighs the balance between institutional self-sufficiency and consortial collaboration. You need to present arguments cast in terms to which your audience will respond.

Politically, you need to find ways to reach the most influential faculty on your campus, who may often be the most resistant to your entreaties. And of course, you need to talk with those administrators who make budget decisions. The steering committee concluded yesterday that it should seek to engage the assistance of the National Academies, and that you should try to do the equivalent on campus.

Charles Oppenheim
Higher Education Funding Councils
Department of Information Science, University of Strathclyde

Introduction

Before I report on Follett, let me give you some background. The United Kingdom Government funds its Universities through the Higher Education Funding Councils. There is one for England, one for Wales, one for Scotland and one for Northern Ireland. Each of these Funding Councils has slightly different priorities, but in many regards they operate very closely. For Follett, they acted as one unit collectively, and together these Funding Councils established JISC - The Joint Information Systems Committee. JISC has as a mission statement:

To stimulate and enable the cost effective exploitation of information systems and a high quality national infrastructure for the United Kingdom higher education and research councils communities.

JISC is responsible for special projects in various areas of information, including libraries, telecommunications networks, management information systems in Universities, new technology, information strategy in Universities, supply of electronic information to Universities, as well as standards and the like. JISC therefore has the power and the money to develop special initiatives in areas it sees fit.

So what is Follett and what does it have to do with libraries? The Follett Report is the most important outcome to date of the library-related JISC activity. Under the Chairmanship of Sir Brian Follett, a senior figure in UK academia, a review group researched and reported on the issues facing University libraries today. Although confined to the situation in the United Kingdom, its report, which came out in late 1993, would apply in many countries. The group devoted much attention to how information technology can help meet the needs of library users and library management over the next decade. The report gave an excellent overview of the problems faced by Higher Education libraries in the UK including:

- shrinking budgets,
- increasing costs - especially of serials,
- shortage of space,
- lack of growth in staff numbers,
- increased numbers of students,
- the move away from traditional lectures to student centered learning, and
- the development of information services based on new media such as online, CD ROM and multimedia.

It proposed that the Funding Councils should jointly invest some £320 million over three years in support of a range of recommendations to further the development of the electronic library. It made clear that its primary objective was the achievement of a cultural change in academic libraries.

I would go one step further and argue that the Follett Report gives a wonderful opportunity to also achieve cultural change amongst authors and publishers. I will explain what I have in mind later.

The Follett recommendations covered issues such as:

- training and awareness of library staff and library users;
- the need to maintain certain key University libraries' collections as centres of national excellence;
- the importance of libraries to the teaching and research functions of a University; performance indicators in libraries; and
- staff management.

However, the recommendations that have received the most attention have been those to do with libraries and information technology. In response to Follett, the Funding Councils agreed to allocate funds: £34.75m during the 1994-95 academic year, with sums to follow for two more years at least. They asked the Joint Information Systems Committee to set up a sub-committee (of which I am a member) to take forward the resulting initiative. This sub-committee, the Follett Implementation Group on Information Technology (FIGIT), started work in February 1994. FIGIT decided to progress the initiative in the following areas:

- copyright
- electronic document and article delivery
- electronic journals
- digitization and electronic storage of books and journals
- on demand publishing
- training and awareness
- access to network resources

FIGIT also appointed a Programme Director, Dr. Rusbridge. FIGIT invited expressions of interest in these areas to be received by early October 1994. They are currently being evaluated as I talk with a view to steering the range of interests towards projects which will be of most benefit to the whole community. In November, FIGIT plans to establish consortia, which will then be asked to put in a formal bid for funding early in 1995.

Let me look at some of the programme areas in a little more detail:

Copyright

The Follett Report noted that there is a need for model agreements with publishers regarding electronic copyright.

It recommended that funding be provided to explore models of how copyright materials can be handled, stored and distributed electronically whilst protecting the publishers' interests. The outcome will, we hope, be models that satisfy the needs of Universities and protect the interests of publishers.

Electronic Document and Article Delivery

This programme area will consider funding a number of document delivery services with a networked electronic component. They will have differing emphases, in order to widen the range of accessible and affordable services and to provide experience for exploring future patterns for service in a more distributed environment. There were 61 applications under this heading. Four main outcomes are anticipated as a result of this part of the programme: working services which will become self-supporting; demonstrating the benefits to libraries and end-users; lower delivery price; and improved service.

Electronic Journals

FIGIT will fund initiatives to improve the status and acceptability of electronic journals. There were 66 proposals under this heading. The main outcomes anticipated as a result of this part of the programme are:

projects which involve parallel publishing of journals in traditional and electronic form; new forms of electronic journals beyond parallel publishing; and exploitation of methods of informal communication across the network e.g. bulletin boards, pre-print services.

Digitization

FIGIT will fund the digitization of back runs of out of copyright journals with significant potential usage. There were 31 proposals under this heading. The two outcomes hoped for are: significant space savings in university libraries; and easy access by researchers and students throughout the sector.

On-demand Publishing

The idea is to fund the creation of electronic readers or anthologies of texts from a variety of sources and print them on demand or make them available electronically to students who may wish to print all or part of the material. There were 28 proposals under this heading. Four main outcomes are anticipated as a result of this part of the programme: on-demand publishing models for UK higher education; collections of electronic materials available for customized publishing; simple mechanisms for copyright payment collection; and reduction in pressure on library materials.

Access to Network Resources

The Follett Report recommended that funding should be provided through JISC to encourage the development of networking navigation tools and the growth of local information servers. There were 68 proposals under this heading.

The main outcome will be to: raise awareness of networked information resources, to explore the issues associated with running large scale services; to ensure UK involvement in developments at national and international levels.

FIGIT also decided to fund so-called supporting studies. These include: monitoring the development of standards; a feasibility study of an arts and humanities data center; a study to establish whether a national retrospective catalogue conversion programme is justified; a study of systems to enable lecturers, librarians, bookshops, publishers and students to share information about books and other materials adopted in particular courses or modules; development of understanding of the sorts of management information librarians need in the networked environment; economic models for information provision in the electronic environment; and implications of the "convergence" of library, computing and other information service functions.

Conclusions

Let me conclude by saying there is no question that the Follett Report has aroused a lot of interest and enthusiasm amongst the academic and research library communities in the United Kingdom. In total, 332 proposals were received; I would expect about 10% will eventually receive funding. We in FIGIT are most anxious to ensure, however, that what we are doing does not just make sense for the United Kingdom, but that it also has an international context. Electronic and network publishing know no boundaries, and it would be pointless for the United Kingdom to develop systems or standards that do not conform to those under development elsewhere, and especially in the U.S.

As I indicated earlier, the objective is not just to change the culture of librarians; it is to change to culture of publishing and of academic authors. Publishers have to come to terms with the new networked environment and need to realize that this represents an opportunity, not a threat. Many of the projects will allow publishers to become involved in the development projects at low risk to themselves and with opportunities to experiment with different charging, contractual and technical delivery mechanisms.

In addition, we are out to change the authors' culture. They must stop being so willing to assign all copyright to publishers, and should retain at the very least electronic rights for themselves; in addition, they must learn to respect electronic journals as a valid medium of learned communication.

My hope is that after Follett, we will have changed all these cultures. If we fail to change the culture for all these sectors, then we have failed.

OPENING PLENARY SESSION

ARL AS A CATALYST

John Black, Convener
ARL President

Welcome to the official Opening Session. It is a pleasure to convene today's meeting and to open the introductory session. Don Koepp will chair the first program session this morning. As the first act of our meeting this morning, I will ask Don Tolliver of Kent State University, to introduce the new director at the University of Pittsburgh, Rush Miller.

MR. TOLLIVER: It is my privilege to introduce Rush Miller, the new Director of Libraries at the University of Pittsburgh. Rush holds his M.L.S. from Florida State University and his Ph.D. from Mississippi State. Prior to assuming his position at Pittsburgh, Rush was Dean of Libraries and Learning Resources at Bowling Green State University in Ohio.

Mr. Miller achieved numerous goals during his eight-year tenure at the University of Ohio at Bowling Green. He has been a key member of the Ohio Link leadership since the beginning of our statewide project. Through Rush's leadership, Bowling Green became an early Ohio Link participant and a test site for many of our emerging services. He was also instrumental in persuading his provost to participate in Ohio Link, where she ably served as chair of the Governing Board during a most critical transition period in the life of the project. At Bowling Green, Rush involved his staff in strategic planning, developed a program to increase cultural diversity, implemented a new organizational structure based upon total quality management theories, and provided staff training programs to accommodate rapidly changing technologies. Rush is missed at Bowling Green and throughout Ohio, but I predict he will be a strong addition to Pittsburgh and to ARL. Please join me in welcoming Rush Miller to the ARL community.

MR. BLACK:The program for this morning's meeting is entitled Renewing the ARL Agenda, and this theme is reflected in a series of program sessions centering around critical questions being addressed by this association. ARL Standing Committees have chosen a topic from their agenda that is particularly ripe for membership discussion, feedback, and input. By this means we hope to broaden membership engagement on a number of issues which are key to research libraries and to the advancement of ARL's agenda in each arena.

One of ARL's most critical roles is in forecasting and articulating significant issues and providing a forum for exploring a variety of points of view on them, as well as for stimulating new ideas. In this Association we attempt to bring together information resources, expertise, and the views of the members in order to analyze, publicize, and advocate policy on issues of vital concern to research libraries and their users. At the same time, the Association acts as a voice for research libraries in the broader community. ARL provides a variety of methods for members to raise ideas and to spark action.

The membership meeting schedule and the committee structure will provide opportunities for groups of members to address a changing agenda of common problems. Through those committee discussions and programs, ARL members can help invigorate the Association's agenda. A number of panels will introduce the issues, and I hope we will use the panel presentations to spark lively, creative, and purposeful discussion. We look forward to an interesting and exciting day-and-a-half.

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PROGRAM SESSION I

BUILDING EFFECTIVE RELATIONSHIPS BETWEEN RESEARCH LIBRARIES AND SCHOLARLY PUBLISHERS

INTRODUCTION

Donald Koepp, Convener
Princeton University

There are rare occasions when I have a chance to reflect on what I am doing. It usually begins with a sort of inventory. What are the problems with which I deal now that are the same as the problems with which I dealt 30 years ago? Most of the problems that we had 30 years ago and that we do not have now were comparatively simple.

A good example is circulation control. Perhaps a third of you in this room have had experience with the end of a semester or the end of a term when thousands of books were returned all at once, and you had to fetch cards from at least two separate files, making sure that you got them back in the books and back on the shelves, and at the same time being absolutely certain that somewhere during that process a well-meaning student was going to take a whole cart of books that had not been charged back and carefully shelve all of them. There are more complicated and more significant things in circulation control today. But to look at the wonders of cataloguing, we now routinely and without any particular thought use one another's cataloguing operations in a very efficient and a very timely manner.

One of the problems that has not changed is the complexity of the relationships among our faculty, who want to publish what they produce, our campus administrators, who have to decide out of the myriad demands on funds how much will be available to purchase those materials, and the publishers, who do the actual work of publishing the material. Recently I thought about this problem, and it is the same as it was 30 years ago. I felt like I was suspended in a basket 5,000 feet over the Grand Canyon, and there were three ropes that held it up in the air, one held by the faculty, one held by the administration, and one held by the publishers. If any one of them should slip, I would be flying high.

Librarians live right in the middle of a triangle, and little has changed in that relationship in thirty years. There are some very simple-minded solutions about which one fantasizes. In a wonderful situation the administration would give us all of the money we needed to buy everything we needed. I suppose we could fantasize about the faculty stopping writing things, and that we do not have to deal with the problem because nothing is being created that needs to be preserved. In the best of all possible worlds we or the publishers could make an arrangement whereby they were able to stay in business but gave us the material free in the public interest.

None of those scenarios is going to work out in the reality of the situation. In a sense our survival depends upon each rope-holder's awareness of the precariousness of our perch. It is not just our perch, but the perch of the entire university context or general public service context in which we are involved.

Our current program is a continuing effort to create an awareness of what we are about. Very often we speak among ourselves about this whole matter with both ease and aplomb, and sometimes with rage, but we have to reach out so that everybody understands what is going on. We have made progress in that respect. Publishers are clearly more aware of our problems, and even faculty are beginning to develop a better sense of them.

In order to further that understanding, we have three speakers this morning. Marshall Keys is the Executive Director of NELINET. He served as the Director of the Library at Curry College from 1980 to 1986, and received

an M.L.S. from the University of North Carolina. He is the author of several articles on the digital revolution and on the changing network landscape, and serves on the Library of Congress' Network Advisory Committee.

Lisa Freeman, who will speak second, has been the Director of the University of Minnesota Press since 1990. She is actively engaged in representing the interests of university presses in discussions about electronic publishing, and serves as the Chair of the Association of American University Press Electronic Caucus.

Finally, we will hear from Robert Grant, who is the President and CEO of CRC Press. Prior to joining CRC he was Vice President of Finance and Administration with the Yearbook Medical Publishers. Grant is Chair of the Professional and Scholarly Publishing Division of the American Association of University Presses. He is also a Certified Public Accountant.

Cooperation Between Libraries and University Presses

Lisa Freeman, Director
University of Minnesota Press

The subject of university press and library cooperation has occupied a good deal of my and my university press colleagues' time in recent years. The rhetoric about increased university press/library cooperation has certainly increased steadily in recent years. ARL has contributed to this heightened level of dialogue between presses and libraries by inviting me and other press directors to these meetings and by sponsoring the ongoing ARL/AAUP symposia on electronic publishing, which I now co-chair with Ann Okerson. They have also supported the CNI/AAUP joint initiative on university presses in the networked electronic environment. This change is a step in the right direction.

However, despite all of this talk, we seem to have made precious little progress in mapping out or putting into practice real-time functional cooperative arrangements. There are some laudable exceptions, such as Project Muse at Johns Hopkins University and Project Scan at University of California, both of which rely on an unprecedented level of press-library collaboration. There are other examples, but they are still few and far between. This lack of progress in the face of so much good will is due to a number of structural issues, impediments in practice if not necessarily in intent. These are, loosely:

1. The inevitable conflict that occurs because publishers generally think of themselves as producers of a particular commodity, in this case scholarly information. Libraries see themselves primarily as consumers. I produce books for which I must recover my costs and then some, thus I want to collect as much as I can for each book (or journal or CD-ROM) sold. You as librarians have a limited budget from which to purchase my products, so you want to pay as little as possible for each book, journal, or CD-ROM purchased.

2. The equally inevitable conflict that results from the fact that we are all competing for the steadily shrinking pie which is university support for the research dissemination function of higher education. Dissemination has always taken a back seat to research itself, despite its centrality to the research process. This is why so many key science journals are published by commercial publishers. Also, the funding available to support the distribution of scholarly information continues to decline.

3. A continuing lack of understanding of the ways in which publishers function and contribute to the system of which we are all part. The fundamental difficulty that university presses now face is that we are being forced to operate under a commercial model while at the same time being asked to provide a public service. For this we receive increasingly smaller amounts of financial support. I would like to take each of these general points in turn.

Publishers as Producers, Libraries as Consumers

It is fair to say that we all labor under the effects of the increasingly popular application of market models to a system that was never intended to function according to Adam Smith's invisible hand. To take my experience at Minnesota as an example, the Press has recently been labeled an Independent Service Organization (ISO). This means we are now lumped together with other departments whose primary role is seen as providing a service to the local university community. Implicit in this label is the assumption that the service that we provide is available elsewhere. We are, in effect, on equal footing with university food services, the campus photocopying service, and the university laundry. I am unable to persuade our administration of the fact that if a consumer does not like a book produced by the University of Minnesota Press, he do not have the option of strolling down the street to McBook to buy one that is more competitively priced.

I am increasingly unsympathetic to the plight of librarians whose fixed budgets cannot keep up with escalating book and journal prices, because I see the librarian's decision not to purchase my books as being one of the primary reasons that I have had to raise prices. The problem is external to the act of a librarian's purchase or a publisher's pricing decision. It is rather the result of a systematic reduction in support for scholarly

communication more generally. We all have a tendency in these situations to "shoot the messenger," a posture that is far from productive when one is trying to seek mutual solutions to common problems.

From a publisher's standpoint, the net effect of this move toward a market model is to push him into a position in which marketability overrides editorial content when I make a decision to publish (or not to publish) a particular work. Minnesota is not alone in now routinely declining manuscripts for which we would have fought two years ago, and this is solely because we cannot afford to publish them.

Competing for Scarce Resources

People rarely debate the need to fund libraries. Even as library budgets are cut, no one ever suggests that such cuts are an inherent good. Although the occasional enlightened university president will make a comment regarding the value of its university press, it is rare indeed that someone chooses to speak out publicly about the deleterious effects of ever-shrinking university press subsidies. However, University support for presses nationwide averaged just over 7% of total sales in 1993.

Under those circumstances, it is difficult for a press director to support greater funding for libraries or for librarians to support higher subsidies for presses, especially in cases in which those funds are coming from the same budget line. There has been some talk of shifting funds from libraries to presses to help stimulate electronic publishing ventures, but to date such discussions have remained at a very abstract level.

Who Do We Serve?

On any given campus, the direct contribution of the library to that university is much more obvious than are the efforts of a press whose list ranges across disciplines and includes publications from authors from many different universities. Ironically, the presses' efforts to maintain the credibility of their gatekeeping function only exacerbates this situation. When I decline the "opportunity" to publish a collection of 20-year-old essays by a retiring mathematician (a field in which we do not publish, have no expertise, and are completely unknown), I undermine further support for the press on campus. Yet scholars and librarians rely on university presses to maintain their independence in the review process as the means of guaranteeing the quality of what they produce.

Given the pressures on libraries and presses to serve their respective communities locally and nationally, it is not surprising that it is difficult for presses and libraries to find much common ground. Paradoxically, our goals — affordable and rapid access to a wide and varied range of quality materials — are much closer than they are disparate, but the means by which we each achieve them — by meeting budgets and satisfying administrators — often put us at odds.

I and my university press colleagues have argued elsewhere and at length about the contributions that university presses make to the system of scholarly communication. It is one small measure of the distance that we have come in recent years that I no longer feel compelled to go into great detail about them here. What continues to be overlooked is the cost of providing services such as gatekeeping, editorial enhancement, marketing, promotion, and distribution. Can you imagine what your life would be like if these services were not provided by publishers?

If we are to overcome the present crisis in scholarly publishing, and to move forward into an environment in which the quality of scholarship is maintained, regardless of the mode of dissemination, then we must find ways to work together. More important, I think we must try to move beyond a consideration of the implications of financial and technological change on our own campuses — and on our own budgets — to consider ways in which we might work within the larger national, and international system of scholarly communication.

Disagreement over intellectual property principles remains the single largest impediment to successful library/press cooperation. The unrestrained expansion of fair use is not the answer to the problem of rising costs. If you push on one part of the system by reducing the number of copies you purchase, you will only see increased pressure in another in the form of substantially increased prices. The danger in such an approach is that some of the key players in the system will be forced out of business in the process. More bad blood between publishers and libraries is generated over this point than over any other, and it is simply not necessary. There

are other ways to deal with the problem of rising costs than through copyright law, and cooperating with publishers is one of them.

Finally, there has been some discussion in the context of the AAU Intellectual Property Task Force report of large-scale transfers of funds from universities, and perhaps university libraries to university presses to help fund electronic publishing start-up operations. I have had conversations with certain librarians who support such an approach in principle. In the end, funding is going to be the key to successful cooperative efforts, and university library budgets are far bigger than university press budgets. If you are serious about working with university presses, a willingness to offer financial support, or to jointly seek funding, will make a big difference.

Without your support, the university press community will likely go its own way in the publishing world, a route that demands that commercial considerations take precedence. This process has already begun. There are a few cynics among us who have suggested that this might even be preferable to an electronic publishing environment in which presses continue to play an active role. However, the larger community we serve will be much the poorer if such an approach is taken to its logical conclusion.

Research Libraries and Scholarly Publishers: Some Notes Toward More Effective and More Honest Relationships

Marshall Keys, Executive Director
NELINET, Inc.

Research libraries and scholarly publishers have a great deal in common. They serve essentially the same public and often deal with the same individuals, albeit in different roles. If asked, both librarians and publishers would say that the efforts of their organizations are devoted to delivering information to users in order to facilitate the creation of new knowledge. However, librarians and publishers live in parallel universes, like characters in science fiction novels or Roz Chast cartoons.

In these parallel universes, people look alike, talk alike, and enjoy many of the same activities and interests. But when the inhabitants of these parallel universes use words, those words do not usually mean the same thing. Thus, the inhabitants see and act in a world very different to the world their counterparts inhabit. Like Britons and Americans, publishers and librarians are separated by a common language. I would like to review with you some of the more important ideas in these alternate universes and some of the words and phrases by which their inhabitants reveal their characteristic beliefs.

Let us begin by examining the word "publisher." To those in the industry, publishing is a noble occupation comprising the identification, collection, preparation, and dissemination of important information to a public that needs it, all to be carried out in return for a reasonable degree of remuneration and an acceptable return on invested capital. To many librarians, the word "publisher," especially as used in the phrases "journal publisher" or "secondary publisher" means "greedy," "money-grubbing," or "thieving."

Curiously, those who publish monographs, particularly trade books, are somehow exempted from this. Ten years ago, one heard many comments from librarians about the prices or the shoddiness of trade books, but I have not heard a librarian complain about a commercial monograph publisher in years. I do not know whether trade book publishers are doing a better job or whether it is simply that all the attention is focused on the new villains, journal publishers. University presses, to which I shall return in a moment, are another matter.

In the library world, the real animosity is reserved for the publishers of journals and of the bibliographic tools needed to access those journals. What I would like now to argue is that in the parallel universe, this animosity, however regrettable, is inevitable.

It is inevitable first because virtually all American librarians believe that no-fee access to information is a right akin to free speech and that any barrier to the free distribution of information—while perhaps a practical necessity—is morally wrong. From the beginning, one of the public purposes of libraries in this country has been to bring information to those who cannot otherwise afford it, and American librarians have strenuously resisted anything like a library lending right that they believe would inhibit this process or make it more expensive. The involvement of librarians in such organizations as the Coalition for Networked Information is largely to ensure that no-fee access continues to exist in the emerging electronic environment.

Moreover, many librarians have also cast themselves as defenders of no-fee access to information on behalf of their public. They define this as a professional responsibility. Thus when librarians react negatively to increases in journal prices or to the imposition of what they perceive as restrictive and expensive licensing arrangements for electronic information sources, their reaction frequently is far greater than the economic consequences such actions might warrant. In the alternate universe, publishers are not only financial bloodsuckers but the enemy against whom librarians fulfill their self-defined professional responsibilities.

Librarians have always tolerated publishers as the most efficient means of delivering information, but as the cost of their products has risen, librarians have increasingly sought alternatives to paying for information. The latest craze in New England is for state-based resource sharing networks to supply the demand for information from off-site sources to public libraries, and there are similar efforts in Maryland, California, and other states. At the same time, interlibrary lending over the OCLC system by libraries in New England has increased by more

than 30 percent in the past five years as libraries attempt to avoid ownership by concentrating on access. Librarians look with interest and some envy at George Washington University's Scholars Express and at the Columbia University study of the cost of biological information because each appears to offer the opportunity to get around what are perceived as the insatiable appetites of journal publishers.

Many librarians welcome the development of the National Information Infrastructure (NII) as a more effective alternative and challenge to the power of publishers. The early history of the network environment encourages this view. Because access to the network itself has often been subsidized at both the national and the organizational or institutional level; because the cost of network access has been independent of usage; and because most current network services are available free of charge to academic users, the network is perceived as "free" even by those who know intellectually that it is not. Librarians are enthusiastic about the network environment. They believe that this environment provides not only an alternative for information delivery, but also a working model for an entirely new paradigm for scholarly publishing controlled by academics who distribute information free of cost to all, if only publishers would stop fighting a rear-guard action and cooperate!

Librarians hold these views because in the parallel universe, especially in the library's academic precincts, they are surrounded by people with similar beliefs and a much smaller sense of responsibility. Faculty have very complex relationships with publishers. They think about them quite a lot less than do librarians and are less inclined than librarians to view them as malevolent, but their actions toward publishers, copyright, and fair use are also more cavalier than those of librarians. They act as if access to information is in fact free. As an aside here, I wonder how it is that so many librarians have taken on the role of being the defenders of copyright on campus? All too often, it is the library, perhaps as the largest target, which has taken on the task of educating the rest of the academic community about the demands of copyright, even outside the library. How is it that many of us have adopted, as the AAU Intellectual Property (AAU-IP) Task Force Report[1] points out, a more restrictive view of copyright than allowed by the law, and how is it that we have been co-opted as enforcement agents for publishers?

A senior scholar at a "Great American University" told me that he had no problem with the present model of scholarly publishing. He felt that assigning copyright for his work was a small price to pay to the publisher for carrying out the necessary editorial and production tasks of scholarly journals and for keeping his scholarly association dues low. When he needed to reprint something he had written, the publisher's fees were always nominal. The present model seemed comfortable to him.

Most professors see no benefit to themselves and to their colleagues in observing copyright and simply do not give it a thought unless forced to obtain clearance by the library or campus book store. As the AAU-IP Task Force noted, faculty generally do not receive payment from publishers for their creations. For the most part, faculty do not pay for the library services they receive with their own or departmental funds. In consequence, many do not believe that their copyrights have significant economic value to themselves or to their institution.

The idea of intellectual property as a salable commodity in which anyone other than the author has rights is an utterly foreign concept to the public with whom research librarians deal, especially since the concept of intellectual property held by publishers has virtually no meaning on college and university campuses, where professors and students continue to copy and distribute both software and printed material with impunity, despite court cases such as Williams and Wilkins, NYU and Kinko's.[2]

Nor do the inhabitants of the alternate universe understand "fair use" as publishers do. A study of information-seeking behavior at MIT several years ago showed that 34 percent of all researchers received their primary information in the form of materials passed on to them from colleagues. Thus, in the academic world, fair use seems to include the right to keep and pass on to one's friends or one's students what one has bought or photocopied or downloaded for one's own use, just as one might pass on a paperback or a magazine one had enjoyed.

Whatever copyright law might say, both the academic world and the larger public believe in their heart of hearts that information once purchased is owned and is theirs to do with as they will. Scanning technology—and I call to your attention the new Ricoh page-turning scanner—and the networked environment make the

instant sharing, even the broadcasting, of such content the matter of a few keystrokes, and it would be a very rare scholar who would give much thought before doing so.

These beliefs are sufficiently strong that they pose a serious challenge to the future of publishers. You are no doubt familiar with the view of the future of scholarly publishing that has emerged in the parallel universe. Currently the university pays scholars to create knowledge, then pays publishers to publish this knowledge through the page charges they impose, then buys this knowledge back from the publishers for the library at exorbitant prices. Why does the university not simply take charge of the publication process and cut out the middleman?

Laura Gassaway, an attorney and law professor serving on the AAU-IP Task Force described a version of this model at a CNI meeting in November 1993. The Task Force examined six possible models for copyright in universities: an enlightened status quo, faculty ownership, joint faculty/university ownership, university ownership, ownership by a consortial body, and joint faculty/consortia ownership. The final report seems to have dropped out both consortial ownership and sole university ownership, although many from outside academe would have a hard time distinguishing between what faculty do and the work of others (for example, federal employees) whose work is defined as "work for hire". However, it encourages universities to experiment with the other models, and many of you are going to do so.

The challenge here for publishers is not necessarily that these models will replace the current model of scholarly publishing, but that they reflect a degree of frustration with the current model that publishers must take seriously if they are to maintain their present positions, or continue to grow.

Why this frustration? Why would intelligent people accept, and even anticipate with some glee, the death of scholarly publishing as we know it? And what can publishers do about it?

In the first place, most inhabitants of the parallel universe have very little understanding of how publishers add value to the process of information transfer. They look at publishing and see three functions: editorial, production, and distribution, and with the lack of modesty characteristic of the academic world, see no reason why they cannot take on these tasks themselves.

Academics are already involved in the editorial end of scholarly publishing. They do the writing, collection, and peer-reviewing, and it could not be much of a problem to find a copy editor or two among the graduate students in the English department. I pause here to reflect on the apparent misunderstanding of many faculty about peer review in the electronic environment. Because most existing electronic journals have been occasional and informal, that is not a necessary condition. Electronic publishing is merely a means of production, no different from moving from letterpress to phototype. The entire peer review process and the entire process of post-publication distribution—all those reprint requests—can be managed more efficiently in an electronic environment, and we need to educate our colleagues and their associations about this.

If publishers disagree with this picture, they owe it to themselves to educate academics, librarians, and the public about the real contributions of publishers to the information transfer process, because these contributions are not well understood, and scholarly results seem to be communicated quite well in such fields as high energy physics without the intervention of commercial publishers until very late in the process.

Publishers find themselves in the unenviable position of being viewed as obstacles to the spread of information rather than as facilitators of it. Their views of the future seem similarly obstructive if we contrast the simplicity of the current electronic environment with the tortured complexity of the model of networked information presented at the CNI Fall 1993 meeting by Joseph Ebersole, representing the Information Industry Association:

> information providers feel they need...a means of authenticating a work; a means of encrypting a work or otherwise controlling it; a means for controlling or setting limits on use (e.g. printing a single copy, permitting or denying downloading); a means of write protection; a means of metering use; a system for electronic contracting; a billing infrastructure; a means for ensuring that conversion by scanning includes the identity of the work; a means for inclusion of a copyright statement; and, a means for inclusion of a

permissions statement. There is a community of interest between publishers, librarians, and academics here; we all need and will all benefit from the ability to authenticate, the ability to identify with certainty, and the ability to protect documents from alteration, but who in the academic world would willingly submit to the rest of this model when its aim is perceived to be rewarding the distributors and purveyors of knowledge rather than its authors and creators? Publishers need to respond to these concerns.

This leads to the third reason for the challenge to the current model of publishing: most inhabitants of the academic universe work for not-for-profit organizations and have little understanding of how the business of publishing works. Many, particularly at lower levels in the organization, are distrustful of the profit motive itself. To examine this in more depth, let us return again to vocabulary.

If we asked librarians to define the word "profit", most of them could come up with a reasonable dictionary definition. But if we asked them what profit actually means in the publishing industry, many of them would respond at an emotional level with something like: "Profit: the difference between what something ought to sell for and the price that greedy publishers think they can get away with."

This comes about because many librarians, like most other Americans, believe that the price something ought to sell for ought to be near to the direct cost of producing it.

In the parallel universe, a difference between the direct cost of production and the sales price means that someone's pocket is being unjustifiably lined and someone else is being exploited. When the average librarian thinks of "profit" and "publishers" together, they think of Robert Maxwell on the Ghislaine, lighting an eight-inch Upmann with a five pound note while back in America a poor youngster from the ghetto leaves the library without the information she needs to get off welfare because the library had to drop yet another overpriced journal subscription.

Simple cost recovery models cannot work for businesses as they do for universities and government. Lacking the authority to print money or raise tuition, publishers need profit to ensure that they will continue to exist when costs rise more rapidly than they can be passed on to customers. Profits from publishing also provide the reward to shareholders for risking their capital on something other than Treasuries. Profits in the parallel universe go only to service the enormous debts created by financiers like Henry Kravis; what is forgotten is that it is ordinary shareholders who own the majority of stock through pension funds like CALPERS and CREF. In the parallel universe, we have not given much thought to these issues, and publishers need to educate us about the economics and ownership of their business.

As much as this particular deck is stacked against commercial publishers, they should have sympathy for their colleagues at university presses and at organizations like OCLC and RLG. As members of the "for-profit" world, publishers are expected to be greedy. Librarians reserve a special place in hell for not-for-profits that act like profit-making organizations by retaining earnings or by broadening the scope of their activities. God forbid that a university press should have a best seller or that an OCLC should acquire a software company! Though these organizations may seem to commercial publishers to have an unfair competitive advantage because they do not pay taxes on their core businesses, I can assure you that they are held to a standard by their members that makes the IRS or the SEC look absolutely laissez-faire.

If the picture I have presented is not an encouraging one, I am sorry. Although I have clearly exaggerated in the interest of engaging you, I think this picture is not very far from the truth. We have a situation in which the largest purchasers of scholarly information do not understand what the providers of that information do nor why they do it, a situation in which consumers of content tolerate the packagers of content only because there has been no alternative open to them. Now that an alternative appears to exist, the consumers are turning eagerly to that alternative without any very real understanding of some of the long-term consequences of changes in their behavior. Not least of these is the growing ability of publishers to dispense with libraries as mediators by selling information directly to the user over the network or through document delivery services that have no moral problem passing royalty charges on to users.

Librarians and publishers have a community of interest. We are both interested in getting information to users. Our universes should be converging rather than parallel, much less diverging. If our present course is not to prove destructive to us all, I would urge us all to stop and reflect on developing mechanisms for cooperating. I would also urge publishers to avoid fighting a rear-guard action; the technology is changing, and the methods of control over information that you have exercised in the past will change accordingly. Remember that the Council of Trent produced a Counter-reformation but ultimately did nothing to stop the spread of Protestantism.

At the same time, I would urge librarians and their publics not to romanticize free access to information; some kinds of information will never again be as inexpensive as they are now, and we need to accept that. Technology will give publishers the ability to skim off our largest and most powerful users, making them wonder why a library continues to be a necessity in an organization with limited resources. I would further urge librarians and their academic allies not to be excessively eager to dismantle a structure that has served reasonably well for a generation and more; has the dismantling of Yugoslavia led to utopia?

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[1] *Reports of the AAU Task Forces on Intellectual Property Rights in an Electronic Environment*, Washington, D.C.: Association of Research Libraries, 1994.

[2] *The Williams & Wilkins Company v. U.S.*, 487 F.2d (Ct. Cl. 1973). aff'd per curiam by an equally divided court, 420 U.S. 376 (1974), and also *Basic Books, Inc. v. Kinko's Graphics Corp*, 758 F. Supp 1522 (S.D.N.Y. 1991).

COOPERATION BETWEEN LIBRARIES AND UNIVERSITY PRESSES

Robert Grant
CRC Press

My task is to brief you on the activities of a joint working group that included seven librarians and seven publishers. There is a draft of the document that will soon be available. It is being reviewed, edited, and then it will be published. Ann Okerson has come up with the idea of possibly co-publishing this simultaneously on the Internet utilizing ARL's facilities.[1]

The members of your community that were part of this working group were Betty Bengtson, University of Washington; Harold Billings, University of Texas; Carol Fanshell, Hahnemann University; David Penniman, The Council on Library Resources; Sarah Pritchard, Smith College; John Saylor, Cornell Engineering Library; and Elaine Sloan, Columbia University.

We found that none of us understood what the others do. In October of 1993 we met and we identified first the different kinds of functions that we bring to the table as either publishers or librarians so that we were working from a common knowledge base.

The questions before the joint working group were: How can changes be made possible by electronic publishing which could be implemented in economically beneficial ways for all of our users? How is it possible to inform the other participants in the information cycle about what librarians and publishers contribute to the value of professional and scholarly information?

The first step was to identify those values. I will restate here some that we identified during the working group sessions.

On the publishers' side there was quality control through selection committees and peer review; quality control through editorial assistance, format standardization, and production standards; content development which enhances the organization and the use of the information; abstracting and indexing processes which aid the access of information; marketing and selling activities which provide wider distribution of information and reach a broader audience. That broad distribution supports a more democratic process for access to information. It is a reality that in some cases the publisher's imprint denotes a certain level of quality in the areas in which those publishers specialize so you or users of information know whether or not to go to a CRC Press, or to a Wiley, or a Williams & Wilkins, or whomever for the types of publications in which they have interest.

On the librarian side of the ledger, some of the values that were added were: the selection and acquisition of works; screening many publications so the collection best fits the users' needs; access and reference services that assist scholars in their research and in understanding the growth in their field; information services, cataloguing and various search systems to enable access to information through various avenues, whether by author or by subject searches; grouping information by content and format to provide a structure of the information system; purchase of publications to reduce the direct cost of information to students and researchers; and development of archives to ensure the preservation of the works.

There were some basic economic problems that we had in our understanding of what each of the others performs in this information cycle. For example, the source of funding or revenues to commercial publishers, and how those costs, either in a library environment or in a commercial sense, are allocated. When we get a dollar, how does it break out in the organization? Also, when we started, we had a problem with comprehension of accountability, as in, to whom are we accountable throughout this process? Who are the other stakeholders, and what might we need to do in the future to succeed?

In a library environment, the majority of funding comes from the parent institution. The statistic that was used in our sessions was about 80 percent, with the balance coming from grants, foundations, contracts, and fee-based services. In the publishers' model, 100 percent of our monies come from the sale of products. In the model with which we dealt, costs indicated that 52 percent of library funds are spent on salaries, wages, and employee benefits, while the collection takes up 30 percent of the library budget, and the 18 percent that remains

is left for administrative activities. Publishers in a commercial or a not-for-profit sense have two different models: one for the book publisher and one is for the journal publisher.

For our meetings, Ed Barry at Oxford University Press gave us the model for a book publisher. He indicated that 15 percent of his revenues go to pay off royalties, another 15 percent to support editorial activities within his organization, 30 percent for production costs, 10 percent for marketing, 10 percent for distribution and fulfillment, and 10 percent for administration. That equals 90 percent, leaving 10 percent for the organization's profit or ability to fund other activities in the organization, as well as experimentation with electronic media.

Those of us in this working group who publish journals identified the numbers as follows: editorial activities used 22 percent in a journal environment, production 24 percent rather than the 30 percent in the book environment, marketing was 12 percent, two percent higher than in a book model, fulfillment and distribution was the same, 10 percent, and administration was 18 percent, for a total of 86, which left profits of 14 percent. In a for-profit house, we end up paying taxes and our shareholders expect a fair rate of return on their investment. As was alluded to earlier, your pension plans are our investors.

To whom are we accountable? Librarians are accountable to their university administration, faculty boards, donors, in some cases legislators, and the users of their facilities. A commercial press is accountable to its owners. We have to answer to our owners, who may be individuals, associations, institutions, and shareholders. We are accountable to people who are as demanding as are your owners.

We all have the same goal in providing a service to stakeholders, who are the authors of the information and the end users of the information. In many cases those are the same individuals.

After developing an understanding of our roles and a common terminology, we tried to expand our minds and think about where we might go in an electronic environment, as well as whether or not the electronic environment might replace, supplement, or parallel traditional print publications. It may reduce the time from original thought to the written document, but I do not believe that it will eliminate the need for the functions which are now performed by librarians and publishers.

The areas that will change, at least from a publisher's point of view and a librarian's point of view, will be the financial aspects. The hope is that this electronic revolution will reduce costs for both librarians and publishers. From a commercial publisher's point of view, if we generate savings and we can maintain a fair level of profits, those savings will be passed on. They are not going to be kept within my commercial house, and I would think that other publishers would probably feel the same way.

The majority of the costs for acquisition, peer review, editing, conversion of text, and illustration into a digital format are still required in the new environment as well as in the existing environment. Someone must manage that financial risk. Whether librarians do it, their affiliated university presses do it, or the commercial enterprises do it, there is still an amount of risk involved in buying and managing all of the hardware, software, and the networks. The government will not be able to fund it forever.

Our group suggests that the role will be retained by librarians, and that computer-maintained user profiles may be important screening and sorting mechanisms in the future. The library will essentially be what it has always been, which is an intelligent agent of information.

There will be intellectual changes in this new environment, including authoring and peer review over networks, as well as greater collaboration among faculty and researchers. Librarians will merge information into an integrated system of text and image databases and provide online tools to build, maintain, and share databases. You as librarians are now developing new collaborative roles with faculty and researchers. Since I was invited here today, I assume you are inviting the publishers to be part of that collaboration.

During these meetings of the joint working group, we developed three scenarios. The scenarios were, first, the null scenario, where there was an environment that was fully networked. Only information could be received or published in electronic form. The down side of this scenario was that publishers no longer existed in their current form, and libraries were bypassed. None of us was particularly enthusiastic about this scenario.

Then we moved on to the enlightened self-interest scenario, where we all tried to maintain the status quo. "Let us do what we do now, and let us to continue to do that in the future." This is exceedingly unrealistic. The world is changing, the market is changing, and users' needs are changing.

Third, there was a breakthrough scenario, where there was an environment that was fully networked. Virtually all information existed in electronic form, although not solely in electronic form. When this new environment came into being there was some disorder and disorientation. The system of scholarly communication degraded for a period of time because there was such chaos. Some organizations representing certain players disappeared, which means that some libraries closed and some publishers faded away. In the long run, though, the players discovered that survival depended on better service to their customers, and that it required collaboration in creating totally new ways of getting the job done. That is what we are all here to explore. As a publisher I sincerely hope that there are areas where we can work together in the future.

The joint working group arrived at some conclusions and recommendations. They are as follows:

First, our goal was to communicate what had happened at the joint working group to all participants in this scholarly information process.

We hope to create an end-user survey to test and validate value-added functions in the electronic environment as they were identified by the working group. We did not ask the users of information, the authors, and other members of the loop whether or not they believe that what we add is valuable, therefore we have to test and validate that.

We need to develop a clearinghouse of projects underway, as well as to get information from stakeholders in the process so that we are all aware of what is going on and so that we are not duplicating efforts and can work collaboratively to complete some of these projects.

Another recommendation was to design and fund a project to establish baseline models of functions and services, and to create analytical tools for evaluating the impact of eliminating, shifting, or out-sourcing specific functions or services in the process.

We also decided to work with the Commission on Preservation and Access to design and seek funding for an archiving project and to develop policies, as well as to assign related responsibilities under that project.

Design and fund a project to research existing text archives for out of print or out of copyright material. What we are trying to test there is the assumption that if the information is available, it will be utilized more, and the life of the work will be longer than it is today.

In addition, the working group members wanted to support the formation of other similar groups utilizing members of that joint working group to seed new activities. I believe that there are opportunities where publishers and ARL can work together. We need to find some sources of funding, but that will come as long as we are willing to start to work together or continue to work together.

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[1] See URL: <http://arl.cni.org/clr/Frontmatter.html>, "Librarians and Publishers in the Scholarly Information Process: Transition in the Electronic Age".

PROGRAM SESSION II

PERFORMANCE MEASURES AS INCENTIVES FOR REDESIGNING ACCESS AND DELIVERY SERVICES

INTRODUCTION

Nancy Eaton, Convener
Iowa State University

As Chair of the Committee on Access to Research Resources I would like to introduce the next topic of discussion, Performance Measures as Incentives for Redesigning Access and Delivery Services. The access committee has been focusing its attention on encouraging the development of models to enhance interlibrary loan, document delivery efficiency, speed, etc. As we have been working on those projects, we increasingly have asked ourselves how we were going to measure the quality of a research library when many of the resources disseminated were not owned by the local library. That naturally led us to discussions with the Statistics and Measurements Committee; we asked for their help because this was outside of our expertise. A beginning discussion at this meeting would move the organization in the direction of a better understanding of performance measures, as well as a process for moving toward them.

As you know, the Board's articulated goal for the Statistics and Measurements Program is, "To describe and measure the performance of research libraries and their contribution to teaching, research scholarship, and community service." This is quite a different direction than our statistics program has taken in the past.

I would like to introduce our three speakers. First, we will hear from Bill Crowe, the Dean of Library Services at the University of Kansas and Chair of the ARL Committee for Statistics and Measurement. Currently Mr. Crowe is a member of Users' Council and Executive Committee for the OCLC Users' Council and Executive Steering Committee member for the University Library Section of ACRL.

He will be followed by Nancy Kaplan, who comes to us from the International Systems Services Corporation where she serves as the Senior Manager. Her expertise includes, among other things, strategic planning, business process, re-engineering and performance, and process benchmarking. She has designed and led the current interlibrary loan benchmarking study for OMS, and she has an MBA from Stanford University.

Finally, we will hear from Doug Bennett, Vice President of the American Council of Learned Societies. Before joining ACLS, he served as Vice President and Provost of Reed College and as Executive Director of the Portland Area Library System. Mr. Bennett received his Ph.D. in political science from Yale, and has taught at Bryn Mawr, Swarthmore College, Haverford College, and the University of Pennsylvania. He will be responding to the first two speakers from the point of view of an academic administrator who uses these statistics.

What Does Progress Look Like? How Do We Know We're Making It?

Douglas Bennett
American Council of Learned Societies

Introduction

I will start with a cautionary tale. In the 1950s and '60s social scientists and others were concerned with the advancement of LDCs toward a variety of characteristics of the good life (such as we live in the U.S.), which they wrapped in the phrase 'modernization'. There was a great deal of scholarship, some of it impressive, devoted to how societies modernize and attempting to measure progress toward that modernization using various indicators.

In the 1960s, Pablo Gonzalez Casanova, a Mexican political scientist, published Democracy in Mexico, a broad survey of prospects in that country. He reported on survey evidence regarding modernization, and critiqued a variety of indicators which were being used by scholars and international organizations to gauge progress. One such indicator was the adoption of shoes rather than huaraches, where he showed that shoes were not better adapted to rural life. Another was the adoption of wheat bread rather than tortillas, where he showed that this was not more nutritious than the traditional diet. Painfully and painstakingly he showed why these were not indicators of 'progress' in the Mexican context. This does not serve as an argument against benchmarks or indicators, but rather a warning that we should take care to measure what is important. We could unwittingly mark negative progress.

A homely variant of this exists, with which many of you are familiar, undoubtedly. A child in the back seat of the car asking "Are we there yet, Daddy?" This is particularly irritating when you do not know where you are or where you are going, and do not want to admit it, even to yourself. This is roughly our predicament. We are driving through ruggedly scenic country, but we do not know where we are or where we would like to arrive, let alone when. Worse, those in the back seat are not children, but Presidents and Provosts, faculty and students, legislators, bureaucrats, and accreditors. Children can be distracted, perhaps even misled in extreme circumstances, but that is unlikely to be successful with our back seat passengers.

William Crowe and Nancy Kaplan are much more involved in ARL's ongoing committee work to develop new statistics and benchmarks that will help us gauge our progress. My role on this panel is to provide broader context and pose questions. I will sketch some current predicaments of universities, some basic strategies that are being employed to deal with these, and then focus back upon library access and services.

Wider Context: Predicaments of the Contemporary University

I will mention two predicaments of universities today. These are the problems with which Presidents and Provosts grapple on a daily basis.

The first is fiscal squeeze. Universities are caught in a fiscal squeeze between rising costs and pressure on revenue sources. If this seems familiar, like something with which you have been living for some time, let me assure you it is likely to be with us for some time. We have raised tuition about as high as we can, endowments are unlikely to perform as well as they have over the past decade, and tax rebellion still wins elections. That is three strikes on the revenue side, and there is no reason to think that cost increases will moderate.

The second predicament is that of declining confidence in higher education and a demand for greater accountability. You can see this concretely in public opinion polls and in lower appropriations from state legislators. This only makes the fiscal predicament worse.

One special case of declining confidence worth mentioning is a marked erosion of automatic respect for the value of research. We have had nearly half a century of 'research' commanding respect, born out of the partnership between universities and the federal government that was forged during and just after W.W.II. However, we can no longer rely on this.

One consequence of this is that we will see less support available for generalized development of research infrastructure, which is worrisome for libraries.

General Solutions

I will sketch two kinds of strategies which universities are pursuing in order to deal with these intertwined predicaments, one inward looking and one outward looking.

Strategic management: One is a movement toward what we might call strategic management, a much more active management of the university's directions and resources. This involves greater explicit clarity about goals, efforts to trim and redirect expenditures, and a move toward using information as a planning and strategic resource. Universities have moved away from collecting information for 'keeping track' and 'score keeping' toward collecting information to inform and support difficult decisions. It is a strategy both for containing costs and for showing accountability.

Relationship building: Externally, universities have been building relationships with a wide variety of partners, many of them new. Instead of being separate from society, and having students come to them, universities have been reaching out into local communities and across their states and regions to build specific, purposeful relationships with schools, museums, businesses, local governments, and many others. This helps build support in the face of a decline in more diffuse generalized support.

In a related development, universities have become more oriented toward forging relationships with one another where they see opportunities for sharing costs. Libraries have been one major area for such cooperative thinking, but not the only one.

Observations

Rapid changes in libraries and electronic information are likely to continue: in what is possible, in how much it costs, and in how we assure quality in what we do. That is an obvious observation, but one worth bearing in mind.

We need goals in order to measure progress toward them, but at present we do not have adequate goals, or ultimate goals, with regard to what universities should do. This is not a consequence of dim thinking by librarians, but rather a consequence of major changes in how we do research and education. I will not try to describe these changes, because that would be a large undertaking in its own right; I will only assert that they are taking place.

The current measures of library performance, the ones enshrined in the ARL statistics, rest on long-standing assumptions about how libraries support teaching and research. However, those assumptions are no longer as sturdy as they once were. In such a situation, how can we know what progress looks like? How can we measure it?

We lack a national policy/planning framework. We were forcefully reminded of this by Charles Oppenheim's review of the steps being taken in the UK to implement the Follett Report. We simply will not have anything like that in the United States. Instead, we will have to work it out ourselves through a very decentralized system. There are benefits to having such a decentralized system; we will have to work hard to take advantage of those, and from time to time we will wish we had an authoritatively sponsored policy/planning framework, not to mention the appropriations to fund it.

A final observation: we are all now in consortia or other cooperative ventures; we are all in the business of sharing resources in a major way. It is simply a question of how conscious or explicit we are about this.

Suggestions

My suggestions largely follow from these observations:

Regarding goals, we need to engage faculty in discussion about how they are now doing research and education, about how these activities are changing in response to the new information environment, and about

how libraries might support these activities today and in the future. We have much to learn from one another. This is probably the most important suggestion I have to make.

Bill Crowe mentioned that his committee would develop some survey instruments to use on campuses. I am sure this will be valuable, but I urge you to use focus groups rather than surveys, such as small group discussions among faculty and librarians, with a prepared agenda of questions and with summary notes taken and distributed to participants and others to spark further thought and discussion. We want to know what good work looks like in research and education, and how libraries can play the best role in these. How do we take advantage of new technology and information formats? We need to construct together a picture of progress before we can measure movement along that road. The results of focus groups will be qualitative, but I think you will find this process more worthwhile for the next few years than surveys or measures which yield quantitative results. Measures, indicators, benchmarks of progress may take a little longer. First we must formulate our goals together.

The changes libraries are experiencing consist of a double movement. It is both a change from acquisition to access and a change from competition to collaboration. We are going to need measures or indicators that capture this double movement. Of the two, I expect that measures or indicators of collaboration will be the harder to develop. I suggest we look particularly hard for these. Taking a cue from Nancy Kaplan, I will suggest that we may find the best models outside higher education.

How do we sell these new approaches to Provosts and Presidents? To accreditors? How do we convince them of the value of new measures to mark progress? I was particularly asked to address this. Here is an odd suggestion: throw them a life preserver.

I once worked for a Dean who had a sign on her door that said "Do not bring me problems, I have enough of those. Bring me solutions." I came to understand this was not just a cheeky warning but also a key to working with her. She really did want to hear constructive solutions. Provosts and Presidents are aware of the need to move from acquisition to access, from competition to collaboration, but they will need you to show them how to do it and how to develop measures which show you are doing it well.

I cannot tell you all the characteristics of a life preserver that genuinely floats, but I can tell you what will make a library solution look like a life preserver to a Provost or President:

- it will promise cost containment,
- it will achieve this through resource sharing with partners, and
- it will be oriented to clear, definite benefits for teaching and research.

The measures that will accompany it will:

- show mutual benefit to all the partners, and
- show an unusually robust fair share of the benefits for your institution.

If we can come up with solutions like these, and measures which track them, everyone will come along, even accreditors.

A fifth suggestion regards the need to build partnerships, consortia and other cooperative endeavors. Here I think we should adapt the slogan of the Green parties in Europe. Think globally, act locally. We need an expansive idea of what we are trying to achieve, but we need to take a succession of small, steady steps toward our goal. The hardest part about building partnerships is developing trust, and comfort in mutual reliance. A succession of small forward steps is the best way to achieve this, but our small steps need to be guided by a broad vision.

We have cause for optimism on this score: libraries have many examples of successful cooperation; libraries have long been the best cooperators in higher education.

Lastly, a suggestion which is a further implication of constant change: avoid premature closure; keep experimenting. We are unlikely to settle into comfortable grooves anytime soon.

Questions

Finally, I want to suggest some questions for further discussion, several of which emerged in discussions at meetings of the Statistics, Measurements, and Access committees.

Outputs and inputs: New measures for access and delivery in research libraries are almost certain to focus less on inputs and more on outputs. But how do we relate the one to the other, inputs to outputs? How can we see what improvements in inputs (e.g. dollars spent, staff time allocated) will yield genuine improvements in outcomes?

Quantity and quality: Measures of performance will tend to emphasize quantity and speed. How do we keep quality in focus as well? This is particularly important as changes in what is available and changes in how it is made available upset all the routines and filters we have built over the years to insure quality.

Time and money: In sharing resources, we will face a tradeoff between cost and timeliness of delivery. How do we manage this tradeoff for our users? What balance or balances will serve them best? How will we capture this balance well struck in appropriate measures? 'Finding an appropriate balance' will pose a new challenge in measurement for us.

Taking part vs. taking credit: In improving access and delivery through consortia institutions we will have to share the burdens and the fruits, but how do we nevertheless let institutions take credit for their contributions to consortial partnerships? Important as partnerships are becoming, we will all still need to talk about how good we are as individual institutions to legislators, potential students, donors and others.

Competition and collaboration: Finally, a larger question for universities and colleges which the previous question suggests, how can we compete over students and faculty and reputation while we move to greater sharing of resources—in libraries as well as in other matters?

Performance Measures as Incentives for Redesigning Access and Delivery Services

William Crowe, Dean of Libraries
University of Kansas

"The Report of the Task Force on Association Membership Issues" is excellent, and includes a White Paper by Kendon Stubbs on access and the ARL Membership Criteria. We know that Mr. Stubbs is essential to the spirit of the Statistics and Measurement Program. In this paper he gives a good indication of the struggle that we all have in dealing with issues of access measurement. I urge you to read it; I have encouraged some of my colleagues to share it with their academic administrators who are also looking for this kind of information. As Doug Bennett says, we do not yet have certainty of data on any national or North American basis, and in some cases not locally.

The challenge for ARL, and specifically for the Statistics and Measurement Program, is twofold. We reaffirmed in our meeting yesterday that before we venture into new territory, we need to emphasize our emerging role in measurement. Up until now our program has been called Statistics; now it is Statistics and Measurement. We do not yet know how much we can mine from the traditional statistics and how valuable they will be, nor what they tell us about where we have come from and where we are today. I have some excellent examples from Stubbs, where we can use the old data by applying sophisticated statistical techniques.

We still need to do a great deal of research in the program with members and with their organizations using machine readable versions of the current statistics. We also need to look at work already done, especially for the last several years, because this is a transitional period. It may be simplistic. In fact, the AAU Research Libraries Project task force report states that there is no likely substitution of new measures for the old measures, but rather an additive function, a balancing function, as we move in this transition period. For example, I would like to refer to a document prepared by Kendon Stubbs that illustrates where new analysis of existing data can be most useful. He examined historical interlibrary lending and borrowing statistics in order to test for predictability of patterns of growth or decrease in lending and borrowing by ARL libraries from the middle eighties until 1993. Using regression analysis, Kendon looked at the trends between 1986 and 1993. He looked at increases or decreases in borrowing and lending, and applied a regression analysis to suggest what the predictability of lending would have been in 1993 , based on 1986 data and each year's succeeding experience. From this, he was was able to identify clusters of libraries at the "higher than expected growth" in lending and borrowing, as well as libraries "lower than expected growth" in lending and borrowing. This kind of analysis leads to questions, and provides some answers, which is what statistics are supposed to do. One of Stubbs' hypotheses, yet to be tested, is that the libraries that have most increased lending and borrowing are those that are heavily involved in consortia and cooperative agreements, which is the name of the game today.

Thus, the first challenge is to realize that the old measures, the old statistics, are still useful and can be used to discover new information which may lead to better decision-making nationally and across North America, as well as in our local and regional consortia. In fact, we know that it is going to be a difficult challenge to convince many in our parent institutions that the old measures need to be complemented and perhaps simplified. I know that my boss is always asking for new information. He is a labor economist and very sophisticated, but many on my faculty do not yet understand that volume and serial counts may not be the only valid indicators of our quality and how we can best serve users.

The manner in which we arrive at that point will be a major challenge for this committee, for ARL, and for many of our scholarly and professional associations. The second challenge is to build a better understanding of how we can develop a concrete agenda to achieve this goal. This was our focus during the committee meeting yesterday. A concrete agenda, with new measures, will help inform us of what is happening, where we may be going, and what our vision may be. The caution here is that this new direction may not produce a 1 to 108 ranking that the Chronicle of Higher Education can easily pick up and publish. This may produce taxonomies, check lists, patterns that will inform us, but will not necessarily seek to compare us in any abstract or concrete way. We do not yet know that, but Kendon Stubbs is very skeptical.

We agreed yesterday to take specific steps in the following directions. The first is that we will ask you for some information on a quick basis. We do not yet know enough about what the members as individuals and groups may be doing to measure effectiveness, to assess themselves and their partners. We will take a broad look at what has been done and what measures have been developed in your libraries. We know that we do not share all the wisdom. We have intuitive, and in some cases, first-hand information that some of us have already gathered interesting data, not just numerical data, both locally and in consortia. We are not so much looking for results as models and processes that you have used. Using the results of that relatively quick survey, our own experience, and the research that we know exists, we will issue a new access inventory survey early in 1994. You may remember that we compiled an access inventory survey three years ago that created a considerable amount of useful information. I have used it a number of times. We know we need to expand the questions about access issues in a new survey and we need to do so in a very rapid, rigorous way in order to get results back to you quickly. One of the reasons we voted two years ago to increase the program to include a full-time program officer was so we could improve responsiveness to the membership and turn things around more quickly. One of our major complaints about the IPEDS information, for example, that all of us in the United States are required to collect, is that we do not see it for three or four years. It becomes of purely historical interest, and we cannot let that happen to us.

We are also planning within that access inventory survey to ask for information about consortial relationships, not just whether we have them, but for some brief descriptive information about what they are. I am prompting you because we think that as we point toward cooperative and inter-institutional relationships we need to understand better where our members stand. Stubbs' quick analysis of ILL data suggests that we need to know more about this area and also that we be able to share that, especially as we move into things like benchmarking. The access inventory will probably look like a checklist, not so much looking for numbers, but for the presence of low, moderate, or high degrees of various electronic forms of information in your institution. This way you may not have to worry, for example, about whether you have 48, 49, or 46 CD-ROMs, but rather a range, and we can get responsive data because things are moving too quickly to try to be so precise. Precision is one of the major challenges in statistics.

The second major initiative will be a better understanding of deployment of staff. We will undertake this after the access inventory survey, and it will be a much longer term effort, one that may take two to three years. It is nevertheless extremely important. We need more than just an understanding of the size of our professional staff, and not just by title codes. It will be more inclusive, so that we understand where we are coming from and where we are going with the use of professional staff, support staff, and student assistants. The challenge here, the real struggle is that a classic personnel utilization study would drive most of us into the ground. We know that. We need to come up with something that is reasonable enough for people to respond to and still provides information that adequately allows us to identify how and where we are deploying what kinds of staff to perform what kinds of functions over time. I have to telephone people, as many of us do, to find out what their patterns of staffing are in certain kinds of operations. Collectively, we know almost nothing about our support staff or student assistants and how we use them. This will be a major challenge, but we must get started.

The third and last major initiative that the committee discussed yesterday is ARL's providing support for user survey methods/questionnaires. ARL would not administer them, nor would ARL collect the responses. ARL would provide support to member libraries that wish to do this. Over time, this information can be tracked by ARL and member libraries in valid and reliable ways; in ways that can be statistically supported. This will require substantial expertise. There is a large body of literature on this, with which most of us are familiar. But we know this is an area about which we have to be careful. It is critical not only to create surveys that you can use locally but also to provide advice, assistance, and where possible support for other methods of collecting information about users; not only what they are doing and are interested in today, but what they may or may not be interested in doing tomorrow. It is also difficult to undertake this kind of research rigorously, but we need to support members who wish to do this, because in time, as we understand benchmarking, we need to have a better understanding about where we may be going.

Another thing I will mention in this vein is that we must do a better job of mining other sources of information about our libraries so that we do not need to ask members for it. We all know that the bibliographic utilities

have considerable amounts of information, that with good cooperation, we can obtain without having to ask for it. We may ask you to comment on it, and also for clarifications or answers to some discrepancies. We know, for example, that we can get very good interlibrary loan data from OCLC and RLIN.

To the extent that the ARL Statistics and Measurement Program can provide tools to support understanding ourselves and how we are moving into an emerging model, we can succeed and we can plan for the future. We must be able to measure changes in our performance. My boss tends to make humorous comments, and he warned me that higher education may be viewed as the welfare queens of the nineties if we do not tell our story factually and in ways we can defend. We must have information. The larger issue is not, however, simply to fend off the uninitiated who will crunch numbers. Many of you are familiar with the NACUBO efforts, for example, and others where numbers were crunched and re-crunched and crunched again; and many cases did not have measureable results because of a lack of context. That is always a danger. We know locally, nationally, and regionally that the data we collect may be used in inappropriate ways. This is a risk we take, and we must be sensitive to the ways in which we distribute our information-gathering efforts. This is a constant challenge for all of us.

Finally, the most daunting but perhaps the most exciting long-term challenge addressed by the committee includes increasing our contacts with such bodies as the National Research Council, ACLS, and others. We can do this with a view to producing a profound study or series of studies on performance quality of libraries and their impact on higher education, in research, and on teaching.

We see time and again in many statistical reports that we must understand better what the data really are telling us and are not telling us, what we can use them for and not use them for. ARL with its renewed staff expertise and our information-sharing will be especially helpful to members as they interpret data and apply appropriate tests.

I will close with a pitch for worldwide access to the ARL statistics which Kendon Stubbs has demonstrated at these meetings. When I saw it for the first time I became extremely excited, ordered a new machine for my office to handle it, because one could do 2,000 ratios of data from the ARL statistics. Whether they mean very much or not is yet to be proven. But as one of the directors who came in yesterday said, "This alone will save me hours of doing these bar graphs and other charts that I prepare every year for my annual budget submission, or for analyses for our board of trustees, or for my faculty library committee." We can inform each other better about where we are, where we might be going, and how we might better work together in large and small groups in order to improve what we are doing.

Performance Measures as Incentives for Redesigning Access and Delivery Services

Nancy Kaplan
International Systems Services Corporation

Project Scope and Objectives

Testing the applicability of benchmarking technology to academic research libraries constituted the major objective of the Interlibrary Loan (ILL) pilot benchmarking project.

The ILL study provides a vehicle for evaluating the benefits and pitfalls of benchmarking within the academic library environment. By conducting a small scale benchmarking study, we were able to develop a dynamic model that the academic library community can use to refine and adapt benchmarking procedures.

To the extent that the three study participants fairly represent the universe of academic library ILL functions, the conclusions and recommendations are generally applicable across libraries. We believe that the findings do reflect some common circumstances and situations while also recognizing the likely differences between the pilot libraries and others. The pilot study does facilitate the efficient conduct of a broader, more comprehensive benchmark study (one that would attempt, for instance, to develop missing information, normalize all data, and look outside the academic library arena for best practices).

The results of the pilot study facilitate answering questions such as:

- How useful is benchmarking within the academic library environment?
- What data gaps exist?
- What broader issues does the benchmarking highlight?
- What type of benchmarking information can be developed?
- How is benchmarking accomplished?

Performance benchmarking is "the continuous process of measuring products, services and practices against the toughest competitors or those companies recognized as the industry leaders." David T. Kearns, CEO, Xerox

The usefulness of any benchmarking depends on the context of the activity. Benchmarking yields the most effective and useful results when viewed as all integral step to change management.

Exhibit I
The Change Management Process

The benchmarking step aids in discovering breakthroughs and developing new, more effective means of managing. Benchmarking enables librarians to consider both dramatically different ways of performing activities and improvements to existing approaches. The results of the benchmarking step provide three major benefits:

Understanding the drivers of performance

What are the critical factors that heavily affect the "success" of a function? Although potential improvements often surface in a number of areas, benchmarking seeks to identify those issues that have the greatest impact.

Highlighting new directions and suggesting changes

Because benchmarking looks outside an individual institution, each participant needs to adapt the identified best practices to fit within the individual organization. But best practices do point the way, providing direction and suggestion if not definitive solutions.

Leapfrogging the best

Although the range of practices across libraries can be substantial, benchmarking helps organizations to leap ahead of the current "best." Two factors make this leapfrogging possible: (a) Benchmarking breaks down

each function into the smallest logical, measurable processes. The analysis at the concluding phase of benchmarking brings together the best practices at this subprocess level. No single library is likely to have a best practice for every subprocess. Pulling together all of the identified best practices, therefore, creates an overall function that surpasses the performance of any one organization. (b) Because benchmarking is oriented towards individual processes, libraries can effectively use the experiences and expertise of other industries in both the non-profit and commercial sectors.

For instance, because ILL groups employ many highly educated individuals for fairly repetitive tasks, the pilot study found other industries that have similar motivational issues (such as the lodging industry or computer services field) would likely uncover different techniques for maintaining employee enthusiasm, loyalty, and interest. Differences in approaches and performance among libraries are likely to fall within a smaller range than differences across industries. Cross-industry benchmarking frequently yields significant breakthroughs and completely new approaches that enable quantum leaps in performance.

As the quote from David Kearns, suggests—and as the discussion above implies—three factors are critical to the success of a benchmarking study:

Commitment to continuous improvement

Benchmarking is not an answer but a management tool that helps direct and facilitate change management. And change is continuous. Benchmarking—the process of identifying best practices, adapting ideas and procedures to a particular library, and implementing change—helps the organization to leapfrog to the lead, even as the lead constantly moves ahead.

Measurement

Early steps in a benchmarking study include not only identifying the subprocesses but defining how to measure success. Objective measurements help pinpoint performance drivers. A process or subprocess that cannot be measured cannot be fully benchmarked—and the value of subsequent implementation efforts becomes moot. If a library cannot measure improvement in performance, then management cannot justify the effort and investment required for change.

Inclusion of performance leaders

Only when benchmarking includes the performance leaders do participants gain optimal advantage from the study. Effective screening of participants early in a study, and analyses of performance measures, helps to ensure that the benchmarks represent leading edge practices.

Commitment to Continuous Improvement

As Exhibit 2 illustrates, benchmarking supports continuous improvement. The beginning point of a benchmarking study, Establishing Performance Targets, also occurs at implementation of new practices.

Exhibit 2
Benchmarking for Continuous Improvement

This approach to benchmarking is designed to identify and take advantage of the factors that make the greatest difference. The second step involves looking for short-term opportunities and early wins. Although unlikely to move a library to a leadership position, these early wins make an immediate difference in performance and, in doing so, create greater enthusiasm for later changes.

The third step, Identifying and Focusing on Performance Drivers, similarly concentrates on highlighting those changes that will affect performance most significantly.

Measurement

Performance targets define how well the library functions; how much is done or how fast actions occur constitute only part of the measurement. Within ILL, for instance, the pilot study found that turnaround time functions as the primary measure of performance. Although turnaround time (whether for delivering materials

to patrons or responding to requests for materials from other libraries) is important, it is an incomplete measure alone. Does faster turnaround correlate with greater patron satisfaction? Do different patron groups value speed of service differently? Does greater speed not matter significantly after reaching a certain level of service?

As Exhibit 3 illustrates, performance measures should also take into account measures of effectiveness. In this example, we define effectiveness as patron satisfaction. (Study participants would also have to quantify customer satisfaction, perhaps based on appropriately designed surveys).

Exhibit 3
Inclusion of Performance Leaders

Because best performers in a particular process or function might not be academic libraries, some academic libraries might argue to exclude them as representing a level of performance not achievable for the academic libraries. However, we have found that best practices are typically adaptable and transferable across industries.

Additionally, best performers often exhibit three important characteristics:

1. The ability to demonstrate clearly the effectiveness of their approaches.

In doing so, best performers often introduce and provide insights into new measurement techniques.

2. A willingness to try innovative ideas.

Best performers often use unconventional programs, strategies, or tools. When successful, such practices often yield a quantum leap in performance.

3. Knowledge about implementation hurdles and priorities.

Because best performers have already implemented the alternative practice, they often provide excellent insights into implementation issues.

Drawing on the expertise of several ILL and academic library professionals, the pilot benchmarking team initially identified two subprocesses: (a) borrowing, and (b) lending. However, after visiting the three participating ILL operations, the team concluded that ILL involves three distinct subprocesses: (a) borrowing, (b) lending, and (c) delivery. Subsequent analyses included the three subprocesses.

When a benchmarking project does not include a pilot phase, involving all participants in reviewing and refining the first two tasks—defining study parameters and defining performance measures—strongly affects the ultimate usefulness of the study. Appropriate definition of the subprocesses, for instance, is critical and more likely to evolve when all participants contribute. A benchmarking expert with no special ties to the process being benchmarked should lead the benchmarking team to ensure a comprehensive and objective view. However, we strongly recommend that an advisory panel composed of participants provide input to the structure of the study. The first two phases establish the analytical structure of the project and largely determine participants' acceptance of the final results and recommendations.

As noted on the benchmarking task chart, performance characteristics must be measurable and should include a strong customer focus. The pilot study found ILL operations lacking in both of these areas.

The core benchmarking team developed preliminary performance measures, Attachment I, for review and revision by the participants. Although all of the participants maintained operational data, such as cycle time, requests satisfied, and the number of libraries/data bases contacted per request, the pilot study uncovered a general dearth of performance measures. No participant maintained customer satisfaction or need fulfillment information.

The lack of measurable, customer focused information limited the recommendations and conclusions that the core benchmarking team could draw. However, the pilot study serves a valuable purpose by highlighting a critical next step—the development of performance measures.

During this third task, the core team developed preliminary data collection instruments. By combining benchmarking expertise with functional knowledge, the team hypothesized management controllable factors likely to affect performance.

Ideally, participating libraries can complete the statistical portions of the data collection instruments independently. The core team planned to use statistical models to analyze the impact of each of the management controllable factors on performance measures. The team would then focus qualitative interviews on those areas in which a library excelled.

Procedures for normalizing data also are developed at this stage. Normalizing eliminates the "yes, but..." response at the conclusion of the benchmark study. For instance, if the core team and advisory group believe that the size of a collection influences performance measures, the core team would determine how to adjust data to ensure comparability across libraries of varying size. Normalizing compensation data (so that $1 in Los Angeles equals $1 in Maine) might involve adjusting for differences in cost of living by geographical location, or might focus on the value of the compensation within the university environment. In this instance, we would seek to evaluate not the absolute level of compensation, but the level compared to faculty, administrative, clerical, and other groups within each university.

Clearly defining both the questions the benchmarking study seeks to answer and the analytical methodologies to be used helps avoid cluttering the study with useless data and ensures the collection of pertinent facts.

Partner selection constitutes one of the critical factors determining the success of a benchmarking effort. Partners determine both the value and validity of the information. For instance, if partners do not represent best practices, then the value of the study results diminish greatly. Libraries must also feel comfortable in their ability to adapt practices from a partner to their own operations. We suggest using three screens to evaluate potential partners:

- Density of university libraries in geographic areas
- Size of collection—probably important only when dramatic differences exist
- Number and management of individual library sites at a university—are specialty libraries (such as law, medical, music) and off main campus libraries included and managed as a single library system?

Cultural/environmental screens seek to ensure that participants share a common philosophy and mission. Cultural similarities facilitate the transfer of best practices among participating libraries. This selection screen might include criteria such as:

- The importance of ILL to the library
- Whether the library has a policy of ILL being transparent to patrons or a clearly differentiated service
- The relative priority (or policy of equality) that the library places on its patron groups (professors, graduate students, undergraduates...)

Performance measures must also take into account the performance standards of the libraries included in the study. Among the three libraries participating in the pilot, for instance, one had no internal target for responding to lending requests; one sought to respond to all requests within 24 hours, and the third participant had a target of 48 hours. Performance varied according to these targets. Data collection, therefore, needed to distinguish between the actual time required to complete each task the "waiting time" before staff initiated action on a request, and gaps in time once processing had begun that were attributable to the priority status of the activity.

Partners outside of libraries add greatly to the value of a benchmarking study. The likelihood of discovering quantum differences—and enabling quantum leaps—in performance increases significantly when looking across industries.

Based on the information generated during the benchmarking study, we suggest that libraries consider including for-profit institutions as well as other not-for-profit organizations in benchmark projects. Benchmarking with cross-industry partners, however, does differ slightly from intra-industry assessments.

Evaluations should focus on specific, clearly delineated functions rather than on a broad service—for instance, an ILL benchmark would include only those particularly noteworthy operations at a commercial firm. A company might be included for the limited purpose of analyzing how it achieves its speed in locating materials.

Industries for whom a particular function represents a critical success variable should be included. The hotel industry, as example, confronts motivational problems similar to those in ILL—highly qualified staff who must deal with issues that do not always challenge them intellectually. The Ritz chain of hotels has focused heavily on this concern. Although their solutions cannot be precisely replicated within an academic library, many of their approaches are relevant and adaptable to libraries. They might offer potentially dramatic improvements.

In soliciting cross-industry participation, libraries need to emphasize the functional focus rather than the library service being explored. The study should involve more than one organization for each functional issue under consideration—as a means both of identifying several best practices and of creating a pool of information that will interest out-of-industry participants.

Because the objectives of the pilot benchmark study differed from a full benchmark, criteria for selecting participants were somewhat different as well. The characteristics of the participants when considered as a group were as important as the considerations of the individual libraries. The pilot ILL benchmark relied on four major selection criteria:

1. Reputations as high performers
2. Diversity in strengths
3. Geographic proximity to the core team
4. Interest and openness of library director and ILL staff

Although the participants in the pilot benchmark study routinely collected a great deal of data~ the data were almost exclusively processing data. The core team did collect available processing data. However, inconsistencies existed in the data collection procedures that each library followed and in definitions used. In a full benchmark study, it will be important for the core team and participants to identify key data early in the study, and to define the lowest level (or smallest blocks) to which participants can disaggregate the information. The limited time, budget, and objectives of the pilot, however, did not justify this step.

Performance information and measures were generally lacking. The initial plan for the study was to collect performance data—such as measures of ILL patron satisfaction, the breadth and reach of ILL operations (Do patrons who do not use ILL believe that the service does not meet their needs? Do they know about ILL?), the value of ILL to the library—as well as operational data. Although the dearth of performance data hampered the analysis possible during the pilot study, the study proved its value by highlighting the information that libraries should begin to generate. The conduct of the pilot itself, therefore, will help improve the management of ILL operations.

At this step, the benchmark study focused on identifying practices that distinguish best performers. The core team developed hypotheses in four general areas about factors that might affect performance:

- What programs, approaches, or philosophies are unique to this organization? For instance, does library management perceive and treat ILL as encompassing collection or distribution? Is ILL positioned as a specialty service necessary for limited faculty?

- What organizational structure or staffing considerations distinguish this library? Do the background and experience of the staff differ from other ILL groups?

- What specific processes and procedures does the organization follow for each subprocess?

• What technologies are used?

The data collection instrument covered issues such as the use of fees for service; the size, training, and allocation of staff support; and compensation and motivation systems, Attachment II. We also gathered data on the type of computer support used. By requesting the basic data from participants before any site visits, the core team could evaluate the data and focus each site visit on the areas of greatest strength at each library.

Site visits and telephone discussions offer the opportunity to explore those areas in which (a) a library exhibits different behavior from other participants or (b) correlations emerged during the preliminary analyses. For instance, if patron satisfaction seemed to correlate with ILL staff training, interviews would probe training issues. How many hours of training are involved? What is the course content? Who is trained? At what point in a staff member's employment is training offered? required? Who conducts training? What technologies are used? How and how frequently is training updated? How is training applied and continued on the job? Are staff cross-trained?

The two most significant differences that the preliminary data and telephone discussions suggested related to (a) participation in consortia and (b) the relation of ILL and distribution. On-site interviews focused heavily on these issues. In both instances, best practices involved the immersion of ILL within a broader practice. In the "best practice" consortia situation, for instance, ILL was transparent to patrons. Patrons accessed a joint, online catalog; and a unified electronic patron database enabled the libraries to engage in patron-direct lending and borrowing.

Similarly, one library placed ILL within the distribution organization. The fact that a book was on interlibrary loan was of little significance. Instead, the library focused on obtaining and delivering materials, regardless of the source.

LEADERSHIP IN THE NEW WORKPLACE

Kent Hendrickson, Convener
University of Nebraska–Lincoln

Although I think most of us still spend the majority of our time on a job dealing with people, we seem to spend less and less time at ARL meetings talking about people, management, management philosophies, and all the changes that we are looking at in our organizations. Therefore, I am pleased that we are going to have this session talking about leadership. Our guest today, Carole Leland, is a Program Manager for the Center for Creative Leadership. She received her Master's degree in Education from Harvard and a Ph.D. in Higher Education and Sociology from Stanford. She is the co-author of Women of Influence, Women of Vision, a Cross Generational Study of Leaders of Social Change. She is past president and a member of the National Society for Experimental Education and a member of the Advisory Council of the Project on Women and Minorities for the National Center for Research and Vocational Education. Please welcome Carole Leland.

Carole Leland
Center for Creative Leadership

One of the reasons I am with you is because I care desperately about libraries. I started my career working in a library as a high school student. I worked in a small town library. It is to this day important to me that I had Library Card Number 13 at the Vorheesville Library in Vorheesville, New York; and that I worked in that library, and that after I worked in that library and went away to college my mother went to work for the first time outside the home at the Vorheesville Public Library.

Libraries and books have been a significant part of my life, and there is something that signals the fact that they are an important place to be.

I have spent much of my life in and out of academic institutions. I also spent a period of my time working for the College Entrance Examination Board. This suggests that I am totally impervious to criticism, which means that at the end of this session, or during the session I will be very happy for us to engage in some questions or answers or dialogue, as I would prefer to look at it.

I want to start off, however, with at least a gesture toward how to be more interactive, which is something we are beginning to understand and do better. I am going to ask you to start off by talking to the person at your right. Take a few minutes to think before you start talking. Capture for that person the biggest challenge that you face in your institution or in the part of the institution for which you have some responsibility. What is the biggest challenge that has relevance to that institution's purpose? What is the biggest challenge you are facing right now? Turn to the person next to you and exchange those biggest challenges.

Please stop the conversations now, but think about how to carry on that conversation for the rest of the time you are here and beyond. I want you to do one other thing, and this time I do not want you to share it. But I want you to take a reflective moment to think about the challenge that you just shared and what effect that has on you. How is that challenge affecting you personally?

It is within that framework that I would like to spend some time, and also open up a dialogue about the topic of Leadership in the New Workplace.

When we think about leadership we usually think about it as someone else's. In the backdrop of the wonderful city of Washington, DC it is easy for us to think about leadership as someone else's. It is often bound up in our own expectations, and certainly in our own criticisms, of someone else's leadership. Thus when we think about leadership, we are talking about what they usually do or do not do, and that is how we see it.

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However, the point with which I would like to start is that leadership really is within us, and it is up to us. The responsibility and choices are ours. I am here not to talk about somebody else's leadership, but about yours and mine.

Here I want to recall the words of Barbara Streisand, who said, "I do not think of myself so much as a legend as I do a work in progress." After years of looking at and being a part of the leadership arena, I think of my own work in that way and, hopefully, you do as well. Your contributions to how we think about leadership and what we do about leadership are terribly important and welcome.

I would like to talk about leadership frameworks, perhaps to help you define how well you are doing and where you think you are with respect to your own leadership. I would also like to talk about how we can look at some of the challenges you face, and finally, I will discuss in detail some of the competencies we think are very critical, and suggest some action items that might be useful for you.

Let me begin with a quote from Joe Rost's book, for those of you who have had a chance to look at the literature of leadership. Joe Rost is a professor at the University of San Diego whose book, *Leadership for the Twenty-first Century,* takes a relatively academic look at leadership and ways in which we have defined it.

He says, "Our traditional views of leaders as special people who set the direction, make the key decisions, and energize the troops are deeply rooted in an individualistic and nonsystemic world view. Especially in the West, leaders are heroes, great men, and occasionally women, who rise to the fore in times of crisis. Our prevailing leadership myths are still captured by the image of the captain of the cavalry leading the charge to rescue the settlers from the attacking Indians."

What Joe describes are the ways in which we have thought and talked about leadership for a long time. The notion is that all things stem from the leader. The vision, and also the answers to our questions, are the things that are really important to us which come from the leader.

This conception that we have a lot of the implied characteristics of leadership has not truly left us, and we deal with a lot of those characteristics. We still carry these traditions and views, and organizations continue to support them.

I know that some of you have broken through this, and I hope that this will be an opportunity for you to give a testimonial about how you have done that and what you have done, but I do not think we can at this point leave this totally. It is still very much with us.

What we want to juxtapose with this is what has become a new and rich rhetoric. Perhaps one of the better examples of this is the work that you may be most familiar with because it has certainly gotten the most attention, and that is Peter Senge's work, *The Fifth Discipline.*

Peter Senge is a good example for many reasons. In contrast to Joe Rost's historically descriptive quote, let me give you a Peter Senge quote that seems to capture the direction in which we would like to move.

"The new view of leadership in learning organizations centers on subtler and more important tasks. In a learning organization leaders are designers, stewards, and teachers. They are responsible for building organizations where people expand their capabilities to understand complexity, clarify vision, and improve shared mental models. That is, they are responsible for learning."

What we are struggling with is how to translate the Senge philosophy, and those of many others who have given us some pause recently about what we have been doing as leaders, to become people who are the facilitators and shapers of organizations and visions. You will notice that the words which become key to us are, "purpose, situation, influence, collaboration, and lateral." Those are not things that have ordinarily been a part of our life.

The struggle to develop new styles of leadership is made against a backdrop of what is happening in the larger context. I recommend looking at the trends that constitute this backdrop, and one place to do that is a book called, *The Twenty-first Century Organization.* It gives us a chance to look at what has been going on, and as you look at your program, you perhaps see a reflection of certain trends.

At the Center for Creative Leadership, we asked our professional staff to help us understand the larger picture. We asked what things shape the context in which we will make some changes in ourselves and in our leadership.

We came up with a list similar to others: globalization, the whole architecture of organizations and how organizations are being recreated and reframed; diversity in the workplace; the changing relationship between employer/employee; technology; teams; values; succession; total quality; and learning. Those are the key arenas in which all of us are working, across professions as well as across institutions.

In a study that was done some five years ago by Korn-Ferry, one of the large outplacement firms, the question they asked of many chief executive officers in major organizations was, what are some of the personal characteristics that it will take to move into the Twenty-first Century?

If you look at the things that are very low in terms of personal characteristics, you notice tough, personable and conservative are not on it. That is contrary to a lot of thinking. We were very much taken by the notion that patient and personable are still characteristics we would like to see.

You will notice on the very high ones that you see risk-taking, collaborative, loyal, and analytical. In other words, there are a lot of personal characteristics that still make it possible for people to look at a list like this and say, I am doing fine. That is the danger of lists of this nature, because they give you a sense that, "Everything is OK with me, what is the problem?"

There still is a problem. Some of you are probably familiar with John Kotter's work at Harvard. If this is a repeat, good, because it will allow you to perhaps take stock one more time. He does something that is useful. We banter around a lot about these terms of management and leadership, and he comes right out in his writings to suggest that probably we do both of those things, but the problem is that we need to do them better.

What I find helpful about this is that it helps us to sort out for ourselves where we have particular competence.

Most of us have been besieged with complexity over the last ten years or so, especially those of us who have come through traditional academic training and roots. Even though you live in an environment that hopefully has some freedom from the disciplinary boundaries, we still live on the left side of that chart. A lot of what we do has been concentrated with the budgets and planning.

Kotter divides things neatly into three large areas. The first is the agenda. Managers are consumed by the kind of planning and the budgetary implications of plans. So they are frequently thinking about priorities, and they are trying to deal with complexity in that sense.

Leaders, on the other hand, are trying to set direction. It is frequently not orderly. It is frequently intuitive. It is frequently in terms of broad brush strokes. So there always is the dilemma of having to somehow put those two things together. Some of us are better at one side of that than the other in terms of the kind of agendas we create.

The point that Kotter makes, and the one I would underscore, is that if you really are talking leadership, you cannot avoid the necessity to know how to be visionary and to set direction and to think in terms of change, because that is really what leadership is about.

If I start with the notion that leadership is within, then we are talking about your change. We are talking about how do you change, how do you think differently, how do you look at the world differently, how do you, then, set some direction?

Kotter also talks about networks. They are familiar, part of the jargon, and certainly a part of everything that we have learned over the last few years. Managers do that, too, in a sense. How do they find the right kind of job description and job title to go with the responsibilities? They are building a network of people and forming it into an organizational framework. That is what an organization looks like.

The critical part for the leader, however, is not so neat and tidy. It really is, how do I align people around the vision and direction that I want to set in order for me to carry out that vision or to see that vision and that

direction implemented somewhere? That means working with people with whom I do not have much contact. It means, as you talk about in your own agenda for the association, going beyond the boundaries that you are used to, reaching out and establishing new kinds of relationships and building a very different kind of network. It means not having lunch with the colleagues you have known and "loved" all your life, but having lunch with a group of strangers who speak a different language that you are trying to learn. It is a very different kind of assignment that the leader has.

The third thing that Kotter talks about is execution. The management side of this regards how we make sure that the job gets done. That is what Kotter is talking about. How are we sure that things happen, that things get done? Managers tend to look at the way people do things. They supervise. They look over their shoulders. They check in. They ask for reports. We have been terrific at this in the academic enterprise. We check in. We ask for reports. We do things in a way that often smothers the creativity out of us.

Leaders, on the other hand, are people who are trying to look at how they should get people to own, accept, and buy into what they are doing. More importantly, they want to know how to understand and hear people so that what they are doing is something they all want to do. That is motivating and inspiring, and it takes a great deal of what was on the edge of that list; it has to do with patience and an inherent respect for the possibilities that other people have something to say.

In the end, attention to management and leadership as separate concepts produces very important, but different, results: predictable outcomes, which are a part of a very organized and orderly sense of being able to manage things, but also of being able to change things.

If you look at that from a personal standpoint, I suspect you will see that on some of the smaller dimensions you feel like you are doing pretty well. It is for the other ones that I would hope you might take a moment, or maybe even an hour, of reckoning. They imply two very different kinds of worlds.

How do we take a framework and an assessment of ourselves, and see in it our own leadership future?

One way is to go back to the question I asked you earlier, and that is, what is the biggest challenge you face? What were some things that you were hearing? What were the challenges that were facing you? Lack of leadership. Staff realignment. Communicating complexity. Training for technology. Senior people without team skills.

If you take the "Trends for the Nineties" that I have here, your job is to translate the challenges of the nineties. They are easy for us to read and easy for us to appreciate, but also easy for us to put down and put away. Translate those challenges into some actions that are real for you, which I urge you to do. That is part of developing the kind of blueprint for leadership that you need.

We at the Center have some ways of doing that. I will talk about ones that are fairly generic and that will make sense to you. How we deal with the challenges is built into the challenge itself.

Dealing with rapid and substantive change deals with our sense that around us all of these other things are happening, and the sense that we somehow cannot control it. That is only partially true. One of the things that we have learned is that often although we feel overwhelmed by those challenges, it concerns our own ability to deal with resources and change structures. A lot of the changes around us are beyond anything we can do.

On a daily basis change is all around us. But dealing with that does not often mean sitting down, putting your head in your lap and crying that it will go away. It will not. We are besieged by rapid and substantive change, and those little vignettes remind me that there are times when we can get our hands around it, there are times when we cannot. But it is there.

The problem with us is that we take an intellectual look at that, and it is all very cute and sometimes overwhelming, but we do not realize that it is going to change everything in our lives. It already has. You are more sensitive to that than many people with whom I talk because you understand what that means in terms of technology and what that can do.

We have to come to grips with the fact that we are not talking about minor adjustments. We are not talking about giving up the extra car and closing the garage. We are not talking about adjustments that all come easily

to us. We are talking about major changes in structure where people report not to each other, but live differently, live far away, do not see one another. There are all kinds of things that are part of that.

The second thing that is a huge challenge for us is this whole business of how we manage diversity of people and views. That would seem to be all the things we talk about in terms of ethnic and racial differences. That is not it at all. How do we deal with people who look at the world differently than we do?

We have always had diverse world views in our academic institutions. They were idiosyncratic fools, at best, and we have tolerated them. The point is that now we can no longer do just that and set them aside. We really now have to find ways in which we can converse with them, utilize their ideas, and in some way integrate their ideas. It is a different way of looking at the world.

The third one is building a future through a shared sense of purpose. If you ask me what things I have learned in my research about leadership at the Center for Creative Leadership, one of the things we have learned is that you cannot do it alone, that you have to work with and through other people. Yet, we continue to try to work on our own. We continue to try to take our vision and get someone else to engage in implementing it. When, in fact, what we have to learn is that our vision is only the beginning point to a larger and better vision if we can learn how to listen to and talk with other people.

One of the major challenges is to define our own situation. The question we want to ask ourselves is, what is it that my situation demands of me? If you begin to shape the challenge in that kind of question it is a little easier for you to begin to focus.

At the Center, we are beginning to look at how to help leaders prepare their challenges. I could give you another laundry list. I could give you a list of some 200 skills that would be useful if you had to do that. However, that does not seem terribly helpful.

So what we have done is to try to cluster some of those skills into five areas that we call competencies. I want to give you those five areas.

There is nothing on this list that will surprise you, but I will talk a little bit about it because I want you to be able to engage in it on a deeper level than we usually do. It will not surprise you that at the top of the list is interpersonal relationships. However, notice it says dealing effectively, not just having interpersonal relationships; we all have them. It is dealing effectively where we seem not to be able to get the message that is important here.

If you think about the simplicity of a one-to-one interaction and the frustration and complexity of a one-to-one interaction, you will realize that at base here we are trying to decide how to develop trust and respect between two people. That is not something most of us in the academic world have either the patience or the inclination to spend a lot of time doing. It has either happened, or it has not happened. If it has not happened, too bad for them. But we have not been people who have dealt with trying to build up interpersonal relationships for the most part. I do not mean to be glib or unkind, because I am as much a part of the human race as you are.

Here we are talking about how to build a different kind of credibility and trust between people, and how to do that across a whole institution or a whole system, in which we are beginning to find people with whom we can connect, in the right order and right frequency in order to help us advance the things that we want to do. In many cases we are dealing with strangers. They are people we do not know. They are people whose views and whose world views are going to be divergent, perhaps, from ours.

We need to learn not how to find new friends, but how to deal with strangers in a way that allows us to get at the core of some of their beliefs and some of their values.

The second competence, and herein lies much of our own dilemma as academics, is thinking and behaving in terms of systems. It is a part of a lot of the writing, not only of Senge, but of many others. It means a recognition of interdependence. Academic institutions have not been known for that recognition, and any change that we make in any part of an institution tends to affect the whole. Probably no one understands this better than those of you in major research libraries.

Underneath our understanding of systemic change are many values and beliefs. What it means for us in leadership roles is that we have to face not only the difference of those values and beliefs, but also the political

realities of what change requires. Here it is, I suspect, that many of the barriers that we have come into play. We are people who have been brought up in a somewhat competitive environment of trying to be the best. We are people who are highly competitive and have been brought up to trust and develop our individual capacities.

Strongly individualistic, we find it difficult to think systemically and to embrace what that means in terms of relying on others. There is a wonderful quote in Peter Block's new book on stewardship. If you have not read it, I recommend it, not only because it is so readable, but because it is so humane. For us to be able to think systemically, these are his words, "It takes a willingness to be accountable for the well-being of the larger organization by operating in service rather than control of those around us." To make that an operational definition for your own leadership would, in fact, be all that we might ask of you—to be in service rather than in control of those around us.

The third competence is approaching decision-making from the standpoint of trade-offs. Competing points of view and conflicts of interest are constantly going to be there. That is just the reality of life. The problem is that all the rhetoric about win/win has got to be reexamined. That is not a framework that is going to work. There are going to be very few instances of win/win.

There will be people who must give up, and there will be people who are going to gain. The question is, can we do that more rhythmically and more fairly, and how do we do it? How do you smoke out conflict in your role as a leader? That means being able to deal with conflict, to face it and to manage alternative situations with people that allow them to see that it is a rhythm, it is a flow, it is a trade-off, and that it is not always that the good guys and best guys win but, rather, the ways in which we can satisfy one another and weigh some of the ethical dilemmas that go with that.

The fourth competence is thinking and acting with flexibility. Remember the adage, (I do not know where it comes from), "blessed are the flexible, for they will not be bent out of shape." That is one I can live with.

It means that we have to seek out and monitor new information. It means we have to constantly test our assumptions and try new things. You probably have a capacity, especially among your academic colleagues, to provide leadership and initiatives in the understanding and implementation of technology that others do not. When you are looking for those strongholds in your institutions where you can have influence and where you then can build new credibility, that is an arena in which your flexibility has been so critical to the rest of us.

It means that you have to be constantly willing to not only turn on a dime, but be fast on your feet.

One of the important things about flexibility is to keep ourselves focused on the moment and on the task at hand, and not to let ourselves whine about all of the things that someone else is not. Leaders who succeed are the ones who do not whine about what is on their plate at the moment, they are the ones who deal with that and always have another eye on their future vision.

Let me offer the last competence, which is critical, and then move on to a final point. It is that maintaining emotional balance by coping with disequilibrium is an acknowledgment to which we have not paid a lot of attention. This is the fact that more things go wrong than go right in our leadership work. That is the lesson that living has taught many of us. There will continue to be uncooperative people, described in language that is not quite as gentle as I am using here. There will always be the moments of frustration when we see, things realistically, often in conflict.

One of the competencies that we need to develop in our own leadership is not only realism, but an awareness of one's own emotions and feelings. Most of you did not put your head down in reflection when I said to you, think about how that challenge affects you, because most of us do not do that. We do not really think about what the emotions are, what the feelings are that we are having. If we were to do that, we might more frequently find the answer to what we should do next.

We need not only to acknowledge that disequilibrium, but also to pay attention to our own equilibrium, to the kind of support that we need and the kind of respite we need to take when that is necessary.

A framework to define more clearly the challenges that face you in the context of challenges that are going on around you, the clusters of competencies that leadership really requires, helps us to order our leadership priorities and frees us to form our future vision.

But there is one more thing, and it is where I started. And that is that the responsibility and choices about leadership have to do with you. One further question I would ask you to constantly ask yourself: What is the ideal toward which I am striving? This addresses the significance of your own sense of purpose.

Let me offer three different perspectives on purpose that remind me that no matter how much we talk about leadership, no matter how much we talk about groups and working through other people, that we do have to constantly come back home, home to ourselves.

An important article appeared in the *Harper's Magazine* of September 1993, by Barnett called, "The End of Jobs."

In it Barnett says:

> "The global job crisis is the product of a value system that prizes the efficient production of goods and services more than the human spirit and of an economic strategy riddled with contradictions. Contemporary society is built on a social system in which the individual's livelihood, place, worth, and sense of self are increasingly defined by his or her job. At the same time, jobs are disappearing. In the end, the job crisis raises the most fundamental question of human existence. What are we doing here? There is a colossal amount of work waiting to be done by human beings, building decent places to live, exploring the universe, making cities less dangerous, teaching one another, raising our children, visiting, comforting, healing, feeding one another, dancing and making music, telling stories, inventing things, and governing ourselves. But much of the essential activity people have always undertaken, to raise and educate their families, to enjoy themselves, to give pleasure to others, and to advance the general welfare is not packaged in jobs. Until we rethink work and decide what human beings are meant to do in the age of robots and what basic economic claims on society human beings have by virtue of being here, there will never be enough jobs."

He raises for me the fundamental leadership of establishing what is critical for us: How we deal with purpose.

Another quote that Peter Senge uses in *The Fifth Discipline* is a George Bernard Shaw quote that deals with the same issue. "This is the true joy in life, the being used for a purpose recognized by yourself as a mighty one, the being a force of nature instead of a feverish, selfish little clod of ailments and grievances complaining that the world will not devote itself to making you happy."

Let me leave you with one other way to look at purpose. I tend to find it difficult to choose among the mediocre fare of television and find something that is really worth watching. And every time I do, it is at the moment when they are about to take it off the air. I have wonderful timing about this and did a couple of years ago with a program called "China Beach." It was, as many of you will remember, probably our first dramatic television confrontation with the Vietnam War, which for many of us was a terribly difficult period in our lives and a very stressful one. The horrors of that war and all it brought back were not something that became a welcoming escape on television.

I realized it was a profound statement of a lot of things that have to do with our society. And, although it did indeed capture the horrors of that war, it was done through the eyes of a medical unit, and in fact through the captivation of a very attractive young heroine named McMurphy who was an Army nurse, and through her eyes and the eyes of her fellow medical corps people we saw a lot of the horrors and lessons of that war.

The final episode was a two-hour episode that I was fortunate enough to watch. It was a very important one in which after 20 years the people who had survived and remained after the war came back together to reflect not only on the experiences of being there together but also what it had meant for them over these 20 years. Each of them had an opportunity to be reflective. In the background, again, the horrors of the war, the grieving, the loss of colleagues, all of the struggles that are so human.

Finally, in the last soliloquy McMurphy herself has an opportunity to be reflective, and I want to leave you with her words. She says, "I miss it. Things happened, important things, every day, every second. I mattered. We all did. I loved it."

As I listened to her words, I realized that I was not so much identifying with this brash, attractive young Army nurse captain as I really was in touch with myself. After all, what we want is to matter.

I ask you as you look at leadership and as you look at all of the changes that are around us and before us, to think about your leadership in terms of how it is that you want to matter. And I know you will.

PROGRAM SESSION III

ELECTRONIC TECHNOLOGY AS A PRESERVATION STRATEGY

INTRODUCTION

Betty Bengtson
University of Washington

The primary focus of the last two meetings of the ARL Preservation Committee has been discussion of a new preservation agenda for ARL. As we reviewed the past accomplishments, it was apparent that ARL has made a major contribution in supporting members' preservation efforts through publications, its preservation planning program, advocacy for support for preservation activities at the national level, encouraging collaborative actions, and other such activities. In our discussion of a new agenda for ARL, it is apparent that issues surrounding electronic technologies and preservation will be of major importance and will require increasing attention in member libraries.

There are two aspects to this larger issue. First, there is the use of digitization as a preservation strategy for printed and other traditionally formatted materials, that is, as a format to which you transfer existing information. Once you have that material digitized, there are issues surrounding the preservation of the digitized information which are of increasing concern to us as that corpus grows.

We are fortunate today to have two highly qualified speakers to expand our understanding of these issues and to discuss current developments in electronic preservation. Our first speaker is John Van Bogart from the National Media Laboratory. He is the principal researcher for the National Media Lab, and his particular expertise is in structure property relationships and polymeric materials, the primary focus of which is the life expectancy of commercially available magnetic recording media. He is also skilled in the development of software and use of computers for modeling acquisitions and data analysis. He received his Baccalaureate Degree from the University of Illinois and his Ph.D. in Chemical Engineering from the University of Wisconsin-Madison. He is also a member of the American Chemical Society.

Our second speaker, Stuart Lynn, is President of the Commission on Preservation and Access. Before assuming that position in July of 1994, he was Vice President for Information Technologies at Cornell University, where he was responsible for policy, strategic planning, and coordination of information technologies. He also was Director of IBM's Houston Scientific Center, and Director of the Office of Computing Affairs at the University of California. He received his M.A. from Oxford University and a Ph.D. in Mathematics from UCLA. Nationally he is active in advancing the appropriate application of information technologies to libraries and electronic publishing.

ELECTRONIC TECHNOLOGY AS A PRESERVATION STRATEGY

John Van Bogart
National Media Laboratory

The National Media Lab (NML) is an industry resource supporting the U.S. government in the evaluation, development, and deployment of advanced storage media and systems. The NML endeavors to provide a broad perspective of current progress in storage issues, both from a commercial and a government perspective.

Newsletters, research and technical reports, and evaluations published by the NML are available to participants in U.S. industry, universities, and government.

NML research and support is organized into four areas. The first two are tasks which investigate recording system reliability and also media stability. Third, information learned and reports generated by the NML are regularly disseminated through the technology transfer tasks, and fourth, operations support is also available to persons encountering problems with data recording systems or media in the field. The core NML tasks are funded from the U.S. Federal Budget, while non-core tasks are optionally funded by specific government agencies.

NML is hosted by the 3M company, and its resources come from U.S. industries and universities. U.S. companies participating in the NML alliance include Ampex, IBM, and 3M. Universities involved with NML include Carnegie-Mellon University, the Center for Magnetic Recording Research (University of California at San Diego), the University of Minnesota, the University of Alabama, and the University of Arizona.

This presentation begins with a general discussion of the digitization process, although the majority of the talk will focus on media/systems for digital data storage. The two basic types of data storage systems in wide use are magnetic tape and optical disk. This presentation will focus on what can go wrong with each of these data storage formats and how long one can expect them to last.

I am not here today to "rant and rave" about the new digital technologies. My goal is to explain them in practical terms and discuss their limitations and longevities. In the digitization process, a continuous signal is converted to a discrete set of integers. For example, the amplitude of an audio signal at a given point in time could be converted to one of 65,536 discrete levels, which is exactly what happens during a 16-bit sound recording for an audio CD. The intensities of the primary components making up a color can also be rounded off to discrete values (see appendix 4).

There is a trade-off between storage volume requirements and faithful reproduction of the original signal when digitizing an analog source signal. Although a greater number of discrete levels will provide for a better reproduction of the original source, they will also require a greater amount of storage.

To provide 16 discrete signal values, four bits of storage are required per data point. 256 discrete signal levels may provide for better analog signal reproduction, but will require twice as much storage volume — eight bits/datum required.

In appendix 4, a continuous change in color from red-yellow-blue-green (from left to right) has been digitized using three different color palettes. At the top of the page, 24 bits of data for each possible hue and saturation provides for 16,777,216 different colors and provides for excellent reproduction of the original color gradient. Use of smaller color palettes provide less acceptable reproductions of the original color gradient.

The second example shows a digitized image of an Apollo mission photograph. The image at the top of the page apparently provides a good rendition of the original photograph. The image at the bottom of the page shows a blow up of the reflected image of the astronaut shooting the picture in the face mask of the first astronaut (region selected is indicated by the white square). Upon examination, one can readily see that the fine detail of the astronaut taking the photograph, which was present in the original photograph, is absent in the digitized version.

Before embarking on a digitization program, one must first decide on an acceptable resolution for the materials being digitized. If resolutions, sampling rates, and/or the number of sampling levels are too low, fine

details of the original photograph or sound source can be lost. If sampling rates and resolutions are too high, required storage volumes may be difficult to manage.

It shows examples of common video resolutions and associated storage requirements. One pays a price in storage volume requirements for high quality images.

Superior image quality is provided by the Kodak Cineon process which is used for digital special effects processing in the production of motion pictures. A 90 minute film at the indicated resolution would require approximately six Terabytes (six million Megabytes) of raw data storage. This is equivalent to approximately 10,000 CD-ROM's. With data compression, the storage requirements could be reduced to approximately 200 CD-ROM's; however, this is still an incredible amount of required storage.

Key point: There is a trade-off between image quality and data storage requirements.

Books present a special challenge when digitization is considered because they have not only an intellectual content but also a visual and aesthetic content.

The intellectual content can be scanned, digitized, and saved as an ASCII text file. The storage requirements for such a file are minimal — an entire book can easily fit on a single high density floppy disk. Over 500 such books could be stored on a CD-ROM disk.

However, the aesthetic content of the book may also be of interest. The typeface used may be particularly interesting, or the book may contain line or halftone drawings. In this case, the visual content would have to be saved as well. The scanned pages would need to be saved as bit-mapped images. In this case, the uncompressed storage requirements for the entire book would be 160 MBytes, and only four such books could fit on a CD-ROM disk.

Fortunately, one can make use of data compression to reduce the storage volume required.

Data compression can significantly reduce the volume required for storage of a digitized image or text file. There are two basic types of data compression: Lossless compression — where the regenerated data is identical to the original data; and lossy compression — where the regenerated image contains less information than the original data.

Lossless compression takes advantage of data redundancy. A repeating sequence of characters in a text file or pixels in an image file can be identified and coded with a significant reduction in the required storage volume. The MPEG format used for motion picture compression takes advantage of frame-to-frame redundancies. By keeping track of only those pixels which change from frame-to-frame, much less information needs to be stored.

Lossy compression removes information from the original file which supposedly cannot be seen or heard. The Sony Mini-Disc and the Phillips DCC reduce the storage volume required for digital music files by removing frequencies and tones which "can't be heard." In so doing, the storage volume required is reduced by a factor of approximately four. The JPEG image file format removes subtle hues which the eye may not be able to detect.

Using appropriate compression schemes: text files can be reduced in size by a factor of 2-5; still-image files can be reduced in size by a factor of 2-10; and motion picture and video files can be reduced in size by a factor of 10-50. The actual reduction in size which one can achieve depends on the amount of redundant data in the original file. Complex image files (e.g., a photograph) and movies with a significant level of action or rapid editing will be compressed to a lesser degree than simple images (e.g., cartoon or line drawing) and less active movies (e.g., a filmed interview).

Keep in mind that by moving from paper/film to digital storage, you are moving to an inherently more unstable medium. Except in cases of extreme deterioration of the original, the film/paper record will most likely outlive the digital storage medium. New film records have an excellent resolution and permanence which is unsurpassed electronically without requiring huge storage volumes.

The advantages of digital storage: (1) Smaller storage volumes are required (500 books on a single CD-ROM). (2) Information in digital form is "instantaneously" transmissible around the world via the Internet, for example. (3) ASCII text files of books and documents are searchable for specific words and phrases. (4) When

transcribing from digital to digital, one gets a perfect copy of the original; as opposed to from analog to analog, where the quality of the copy is a bit less than that of the original.

The disadvantages of digital storage: (1) The media used for digital data storage have lower lifetimes than paper and film records. (2) The digital record may not be 100% faithful to the original. (3) Compression schemes can be lossy. (4) It is difficult to assess the health of an electronic record, as opposed to paper and film where deterioration is more readily notable. (5) When digital records fail, the failures can happen suddenly and without warning; damaged files may not be readily rescued and reconstructed; with digital data files, you either get "all" or "nothing."

The two basic types of media in use today for digital recording are magnetic tape and optical disk.

There are two basic formats for magnetic tape applications: Helical and longitudinal. Helical scan recorders were originally developed for video applications where high data rates were necessary. Longitudinal recorders were developed specifically for digital data recording.

There are magnetic and non-magnetic optical disk technologies. In the non-magnetic technologies, the incident laser beam is scattered by regions of differing reflectivity. In the M-O technology, the direction of polarization of the incident laser light source is rotated by regions of differing magnetic fields.

Optical tape can also be used for digital data storage. Optical tape finds application in deep archival storage. Technologies that will be available in the future for digital mass storage are solid state and holographic storage. Solid state technologies are currently available, but they do not have the storage volumes necessary to allow them to compete with existing optical disk and magnetic tape systems. Holographic storage is an optical method where information is stored in three dimensions rather than two.

Comparing optical disk to magnetic tape:

Optical disk has a greater area storage density; magnetic tape allows a higher volumetric storage density.

Optical disk allows faster file access times; magnetic tape allows higher data transfer rates.

Optical disk systems are more reliable and the media has a greater longevity than magnetic tape. This is due, in part, to the fact that optical disk systems are non-contacting. In magnetic tape systems, where a read/write head is in physical contact with the tape, there is greater mechanical wear.

Magnetic tape systems usually employ more powerful error correction codes (ECC). Magnetic tape systems are generally less expensive than optical disk systems.

In appendix 11, cost was mentioned as one of the advantages of magnetic tape systems. In appendix 12, the cost of the medium used for archival storage is discussed in more detail.

Some people assess storage media solely in terms of the cost per megabyte. This is naive because it assumes that the data stored on the media has no intrinsic value. When considering a storage medium, one should evaluate it in terms of the cost of losing the information in the event that the storage medium degrades irreversibly.

The "value" of the cassette must be equated with the cost of preserving the data. When the cost of losing the information is considered, it may be economically justified to invest more in a medium or system of proven reliability. It may also warrant the cost of making and keeping replicated copies of original data and "stockpiling" systems to play back the data at future times.

When purchasing media of a specific format, some archivists are required to deal with a procurement bidding process. In most cases, the archivist will end up with the lowest bidder's media, which may not be the best media. Tape manufacturers' products differ in coating thicknesses, magnetic particle stability, and durability. One should endeavor to write procurement specifications which will exclude the poorer media. The vendor should be asked for experimental proof of the stability of the media.

When choosing a digital storage technology for archival purposes, the permanence of the technology should be an important consideration.

Industry standards ensure compatibility which also ensures longevity. Data recording systems are more marketable if the buyer can be assured of interchangeability of media with other drives. A proprietary design is only as reliable as the company behind it. If that company goes out of business, that design will be rendered obsolete.

A technology which is widely used in the consumer marketplace should have a very long product life. The consumer acts as a buffer for technological change. Even though technologies may advance, the consumer will not necessarily rush out to buy it. Consumers do not want to have to upgrade their audio CD's or CD-ROM products every 5 years. This ensures a longer life for the older technology and guarantees the availability of drives and media for that technology. CD-ROM technology should be around for several years as it is gaining a significant foothold in the consumer market. Most computers sold today now come standard with a CD-ROM drive.

Be cautious of emerging technologies. They do not have the track record of the older technologies and therefore may not have all of the "bugs" worked out of the system. It is also difficult to assess the life expectancy of a particular medium in a system when there has not been a lot of practical experience with the system. Emerging technologies typically have proprietary designs and no standards. In today's volatile market, emerging technologies are not very stable and could disappear "overnight" leaving the user with an obsolete technology.

There are essentially three "weak links" in a tape system: The magnetic "pigment," the binder, and the supportive backing, or substrate.

The magnetic pigment is responsible for storing the recorded information magnetically. If there is any degradation in the magnetic remanence (related to the strength of the recorded magnetic signal), or the coercivity (related to the ability of the magnetic particle to resist demagnetization), data can be lost.

The binder is responsible for holding the magnetic particles on the tape and facilitating tape transport (via lubrication). The binder is subject to hydrolysis in a humid environment and can lose its integrity.

The tape substrate, or backing, can undergo dimensional changes as the result of a change in humidity or temperature, and this can result in mis-tracking and the inability of the playback system to locate the data.

Iron oxide and barium ferrite are stable oxides. Their properties do not change significantly with time.

Chromium dioxide (CrO_2) is a metastable oxide which converts to more stable oxide forms over time, both of which are non-magnetic. Thus, a decrease in magnetic properties is typically observed for CrO_2 tapes over time.

Data storage systems which utilize chromium dioxide magnetic pigments, such as 3480/3490 systems, are designed to allow for changes in magnetic properties over time.

Pure iron is chemically unstable and will readily oxidize in the presence of air. To prevent total oxidation, iron particles must be protected with a passivating coating consisting of iron oxide, aluminum oxide, and silicon dioxide ("ceramic armor" coating). This coating significantly reduces the rate of oxidation of the pure iron core, but does not completely eliminate the oxidation of the particle. Over time, the particle will slowly oxidize and magnetic properties will be diminished.

This data was collected by Dennis Speliotis in the late 1980's, thus the absolute values indicated may not be represented of pigments produced today. On a relative basis however, this chart allows general observations to be made regarding the stability of pigments in various storage environments.

The stability of the basic magnetic pigment in two different accelerated environments is shown. Temperature/humidity effects and effects of low levels of gaseous pollutants are shown on the same chart. The data being plotted is the loss in magnetic remanence of the pigment observed after aging at the indicated conditions. The higher the bars, the more unstable the pigment.

In general, the iron oxide and barium ferrite materials are stable. The CrO_2 pigment is metastable. The metal particulate (MP) materials are subject to oxidation resulting in a decrease in magnetic performance.

The metal particulate tapes are the only ones subject to corrosion. All other pigments appear stable in a Battelle Class II environment. Seven days in a Battelle Class II environment is representative of 14 years of storage in standard U.S. office conditions.

Note that these studies were performed on "naked" strips of tape. They were not tested while protected in a cassette. The cassette shell has been observed to offer protection from pollutants in the storage environment.

A magnetic particle is not excluded from being incorporated in a successful magnetic tape product just because it is inherently unstable. If the tape system is properly designed, it can take into account the instabilities in the pigment. The 3480/3490 tape system is a successful digital mass storage system which makes use of the CrO_2 pigment.

Appendix 17 gives a general overview of the stability of magnetic pigments used in digital magnetic tape formulations. It considers the stability of magnetic pigments as well as the robustness of system designs. One can observe that all pigment types are acceptable for archival storage, providing that they are stored in a clean, pollution-free environment at moderate temperatures and humidities.

The evaluations are based on changes observed in magnetic remanence and coercivity upon temperature/humidity accelerated aging and Battelle Flowing Mixed Gas laboratory and field tests conducted by the National Media Laboratory and others as of December 1993.

The above chart does not consider effects associated with binder and substrate instabilities.

The Magnetic-Media Industries Association of Japan (MIAJ) has concluded that the tape binder is the most likely source of failure for tapes produced today. Unfortunately, this is one of the least characterized aspects of magnetic tapes.

The binders typically used in tape formulations are polyester-polyurethane based. These materials are subject to hydrolysis in a humid environment. The polyester linkages in the polymer will react with water in the environment and polymer chain scission will occur reducing the integrity of the cross-linked binder system and resulting in low molecular weight species. This results in a "sticky tape" syndrome, characterized by high tape friction and low coating integrity. The high friction can result in tape seizing and a general inability of the tape to be transported in the drive. The lower coating integrity can result in debris which can cause head clogs and dropouts. Temporary and permanent data loss can result from binder degradation.

Archivists have tools which will help them to estimate the life expectancy of paper and film records. The Image Permanence Institute issues a "Storage Guide for Acetate Film," and the Commission on Preservation and Access issues an "Isoperms" guide for paper. No such tool exists for predicting the life expectancy of magnetic tape media, although the NML is attempting to develop such a tool.

Some of the best research work in this area of binder stability has been done by Cuddihy at JPL; however, his results only point to optimal storage conditions for tapes and do not allow the estimation of life expectancies.

Procedures are available involving tape "baking", which can temporarily increase binder integrity, allowing "sticky" tapes to be played and data recovered.

There are two basic formats utilized for magnetic tape recording systems — longitudinal and helical. The helical scan format was originally developed for video and the longitudinal recording format was developed for audio and data.

In the helical scan format, the tape moves at low speeds around a rapidly rotating cylindrical head. The head drum is oriented at an angle to the tape so that the recorded tracks are written at an angle and run from one edge of the tape to the other. To maximize the single track length, a large wrap angle around the helical scan head and a shallow scan angle is required. Such a configuration makes the track susceptible to distortion of the tape backing. A dimensional change in the backing as the result of a significant change in temperature or humidity can result in a change in the angle of the track or straightness of the track. If the recorded track is not where the scanner read head expects it to be, "mis-tracking" and data loss may occur.

In the longitudinal format, the read/write head is stationary and the tape moves across the head at high speeds. The recorded tracks are parallel to the edges of the tape and run the full length of the tape. Such a configuration is less susceptible to dimensional changes in the tape backing. Tracks will always remain parallel to the edge of the tape.

Helical scan systems are more subject to mis-tracking as the result of dimensional changes in the backing than are longitudinal recording systems. All of the base films used for tapes are preferentially oriented, so that their expansion/contraction properties are not the same down the length of the tape and across the width of the tape. As such, when a tensilized helical scan tape shrinks, for example, there will be a change in the angle the tracks make with the edge of the tape. The scan angle for the record/playback head is in a specific range. If the tracks on the tape do not correspond with the scan angle of the head, mis-tracking and data loss can occur.

Some of the digital tape mass storage systems available today were specifically designed for digital storage — QIC and 3480/3490, for example. Others have evolved from consumer and commercial audio and video recorders — DD-2, ID-1, D8, and DDS. Even though the information may be recorded digitally, such as it is in the D2 and DAT recorders for digital video and digital audio, respectively, these systems are not optimized for the recording of digital data.

"Video is not data" is a point that is often stressed by the National Media Laboratory. Digital video and audio systems are designed to "detect and conceal" errors. If information is missing as the result of bit errors, these systems are designed to fill in the missing information borrowing from the information surrounding the dropout. This procedure is unacceptable for data.

Data systems must be designed to "detect and correct." More robust error correction code (ECC) schemes are also required to ensure that data errors can be corrected. It has been reported that the ECC scheme for the 4mm DAT product, while acceptable for audio, is not optimized for data.

In an optical disk system, a laser is used to read data from a rotating disk. The data layer on the disk consists of a pit, or bump, or magnetic region which disperses, reflects, or rotates the incident beam. Anything which interferes with or changes the optical properties of the data layer or disk substrate can result in data loss.

In general, the polymeric components of a disk can degrade. The metallic components can corrode or de-alloy.

The optical clarity of the substrate is important in those systems where the laser must pass through this layer (CD-ROM, M-O). Anything which interferes with the transmission of the beam, such as a scratch, or reduced optical clarity of the substrate, can result in a data error.

Most of the durability problems encountered with M-O disks are associated with degradation of the magnetic layer. The layer is subject to corrosion, which has given M-O a poor stability rating in the past. The magnetic layers on M-O disk can be quite brittle. Subjecting M-O disks to temperature and humidity fluctuations can result in cracking of the magnetic layer.

The remainder of this presentation will focus on factors that effect the longevity of optical disk and magnetic tape materials.

The industry trend toward higher areal densities is contrary to the direction in which you want to move for long media life.

As digital recording technology improves, the areal densities of recording media continue to rise. The areal density of a material is defined as the number of bits per unit of recorded area. The smaller bit size of a high areal density medium makes the bits more vulnerable to debris, scratching, corrosive pitting, and other bit-obscuring or bit-destroying phenomenon. A defect that would go unnoticed on a 9-track tape may cause a "hard error" on a D2 tape.

As technology advances, more rigorous ECC (error correction code) schemes and better materials will need to be developed in order to maintain the same media life expectancy. An ECC scheme involves the use of check bits and/or data redundancy to allow missing bits of information to be reconstructed from information written at an error-free location.

As areal densities increase and greater amounts of information are stored on a single cassette or disk, the number of times that cassette/disk will be accessed over its lifetime will increase. The increased wear and tear on the cassette/disk may reduce the life expectancy of the media.

The life of the media may not be determined by data error rates, but by the life of the media "housing." In one instance, the life of a tape cassette was limited by failure of the cassette door, not because of any fault of the tape media.

How many insert and eject cycles will your media be required to handle? This may limit the life of your cassette/cartridge/disk.

You have heard the expression "store in a cool, dry place." There are reasons for this. The lower temperatures will slow the rates of the degradative processes in the media. Lower humidities will reduce the degree of polyester-polyurethane binder hydrolysis in tape systems.

It is also important to control temperature and humidity fluctuations. Changes in temperature and humidity will cause thermal or hygroscopic expansion/contraction of materials. The components of tape and disk media have different thermal and hygroscopic properties, so that the dimensional changes are not always similar and can put stresses on the interfaces between differing materials. Distortion, delamination, or cracking of media components can result.

The magnetic layers which record information on M-O disks are brittle. Frequent and excessive variations in temperature have been observed to cause cracking of these coatings.

Pollutants can also accelerate the degradation of metallic tape and disk components by acting as a catalyst for the naturally occurring oxidation processes. Chlorine and sulfide gases in the environment can accelerate the oxidation of the metal particle pigments used in some advanced tape systems. Corrosive gases in the environment can also accelerate the deterioration of CD-ROM and M-O disks.

This chart compares the stability of a metal particulate (MP) pigment with that of barium ferrite (BaFe). The estimated loss in magnetic remanence after 20 years of storage is shown as a function of storage temperature. Magnetic remanence is related to the strength of the magnetic signal stored in the tape. If the tape experiences too large of a decrease in magnetic remanence (Mr), the tape may not be able to be read and data loss can occur.

The point to be made here is that the MP tape sample is much more stable when stored at lower temperatures. By storing at cooler temperatures, the rate of oxidation is reduced and much less degradation is experienced over a given period of time.

Standards committees recognize that individuals have different storage needs. Some tapes need to be readily accessed. Other tapes need to be preserved for as long as possible and do not need to be readily accessible.

For "access" conditions, moderate storage temperatures and humidities are being recommended. The temperature and humidities being recommended are similar to room temperature conditions (68-72 F & 40-50% RH).

For "preservation" storage, lower temperatures and humidities are being recommended. The reasoning here is that the lower temperatures and humidities will slow the normal degradative processes occurring in the data storage media and extend the lifetime of the media.

Questions remain as to how low is too low. In some cases, lower temperatures may actually harm the media and shorten, rather than extend, life expectancies. If tapes are cooled too low, the lubricants can migrate from the binder and deposit on the surface of the tapes.

Comparing tape media to disk media: It is rare to find life expectancy claims which exceed 30 years for tape products. However, life expectancies in excess of 100 years have been determined for various optical storage media types. In this regard, optical disk has a greater longevity than tape. One of the reasons for this is that optical disk technology is a "non-contacting" technology. There is no mechanical wear when an optical disk is played.

The lifetime of the technology may limit the "practical" LE of tape/disk media to 10-30 years, however.

LE's are similar to MPG ratings — "your actual mileage may vary" depending on the number of times the storage disk/tape is accessed during its life, the quality of the conditions in which it is stored, and the care with which it is handled/shipped.

It is interesting to note that the manufacturer who claims a 30 year life expectancy on a Data Grade 8mm tape only offers a 2 year warranty on this product. On the other hand, it is not unusual to find manufacturers who offer "lifetime" warranties on tape and optical disk products.

This plot shows the deterioration in magnetic remanence for different brands of D2 tapes stored at 75 C & 90% RH. Not all vendors' tapes have the same degree of stability. Differences between manufacturers do exist.

D2 is a metal particulate (MP) based professional digital videotape format. MP tapes are subject to degradation over time as a result of a slow oxidation of the magnetic pigment.

The chart shows that a wide variability exists in the CD-ROM disks produced by various manufacturers. The percent increase in block error rates (BLER's) is plotted as a function of time. The CD-ROMs were aged in an environment of 60 C and 85% RH. Some disks were unplayable after less than 100 hours in that environment, while other manufacturers' products lasted over 3000 hours.

Manufacturers vary widely in the durability of the CD-ROMs they produce.

There may be a practical limit to the life of a particular data storage medium. In the case of "100 year life" storage media, the media will undoubtedly outlive the systems and the technology.

You can currently purchase WORM disks which are guaranteed for 100 years. However, considering the explosive growth of CD-ROM and CD-R technologies, it is doubtful that WORM technology will be viable in 10 more years. WORM disks will undoubtedly outlive WORM technology.

It may be more practical to plan upgrades to a newer technology on a regular basis. Some agencies transcribe all of their data to a proven "state-of-the-art" format every ten years. The old records are maintained until the next transcription occurs. In this way, the media/system is only required to last 20 years. Furthermore, there are always two copies of the information available.

To ensure that the media will be readable far into the future, it may be necessary to archive the system along with the media. For a 100 year life, recording systems and sufficient spare parts will need to be archived along with the data storage media. Media with life expectancies greater than 20 years are capable of out-surviving existing recording system technologies.

It is inevitable that technologies will advance, and there is certainly more room for technological improvement. The areal density for magnetic tape is limited, in part, by the size of the magnetic pigment. The size of magnetic pigments has steadily decreased over the years. The current particle in widespread use for high density recording is metal particulate (MP). However, barium ferrite is smaller than MP and offers potentially higher areal densities. Metal evaporated (ME) tapes, in which the magnetic coating consists of a continuous layer of a metal alloy, will also offer the possibility for higher areal density recording.

Areal densities on optical disk systems are limited by the wavelength of the laser light used to "read" the data. Current optical disk systems are based on a red laser diode. As soon as blue laser diode technology is perfected, a whole new generation of optical disk recorders and media with four times the current storage volumes will be developed.

In summary, there are two key points to remember when considering digital data storage technologies.

First, there is a trade-off between storage volumes and faithfulness to the original information source. Better image resolutions require greater storage volumes. Before embarking on a digitization project, one must decide what information is important to ensure that the original source material can be faithfully be reproduced from the digital data file.

Second, the practical life expectancy of digital data storage media is 10-30 years. Media with 100 year life expectancies may be unnecessary since newer and better technologies will undoubtedly evolve and obsolete the original technology before the media life is up.

1994 NML Programs

1994 Proposed Tasks with Industry & Academia Partners

Hardware R&D/Eval.	Media R&D/Evaluation	Technology Transfer	Operations Support
I. Evaluation of Current Systems.	**I. Evaluation of Current Media.**	Newsletters	Quick ReactionQRC) *AMPEX,STK,Metum, 3M, Beltway*
Product Evaluation *(STK,3M)* IBM (NTP-2) *(IBM)*	Media Stability *(AMPEX, Beltway)* MP++ *(CMRR)*	Publications	Standards
II. Extending Commercial Systems	**II. Extending Commercial Media**	Reviews	Measurements *(U of MN)*
Linear Systems *(IBM,STK,3M)* Head Devel *(CMU)* Channel/Servo *(CMRR, U of MN)* Head/Media IF	BaFe *(AMPEX)* Proof-of-concept Technology Metal Evaporated (ME)	Technology Assess.	
Helical *(AMPEX)* Advanced Concepts	Optical Media *(U of Az)* CD -R	Network/Database	
	Read/Write Modeling	Management	
	Tape Pack Modeling		
			Core
Film Digitization	3D Memory *(Cal Tech, U of Neb)* Holographic 2 Photon 3D	Education Principles of Magnetic Recording *(U of MN)*	Customer Specific User Support
High Performance Record Sys Assess. (NSA)	Optical Tape Evaluation *(Kodak)*	Media Care & Handling	Data Destruction
Dry Silver Imaging Technology	Ultra High Storage Density Media	Media Preservation	Measurements
Film Migration Plan	Self Registering Media		
High Resolution Printer Technology	Upgradable/Rewriteable CD		

Non-Core

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Appendix 2

Key Issues

- **The Digitization Process**
  - **Resolution - What is important?**
- **Digital Data Storage Media**
  - **Magnetic Tape / Optical Disk**
  - **What Can Go Wrong?**
  - **Life Expectancies**

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Appendix 2

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The Digitization Process

- A continuous RF signal is converted to a discrete set of integer values.
- A greater number of discrete levels provides for better reproduction of the original signal.
- A greater number of discrete levels requires more data storage.
  - 4 bits - 16 levels (2^4).
  - 8 bits - 256 levels (2^8).
  - 16 bits - 65,536 levels (2^16)
  - 24 bits - 16,777,216 levels (2^24)

Appendix 3

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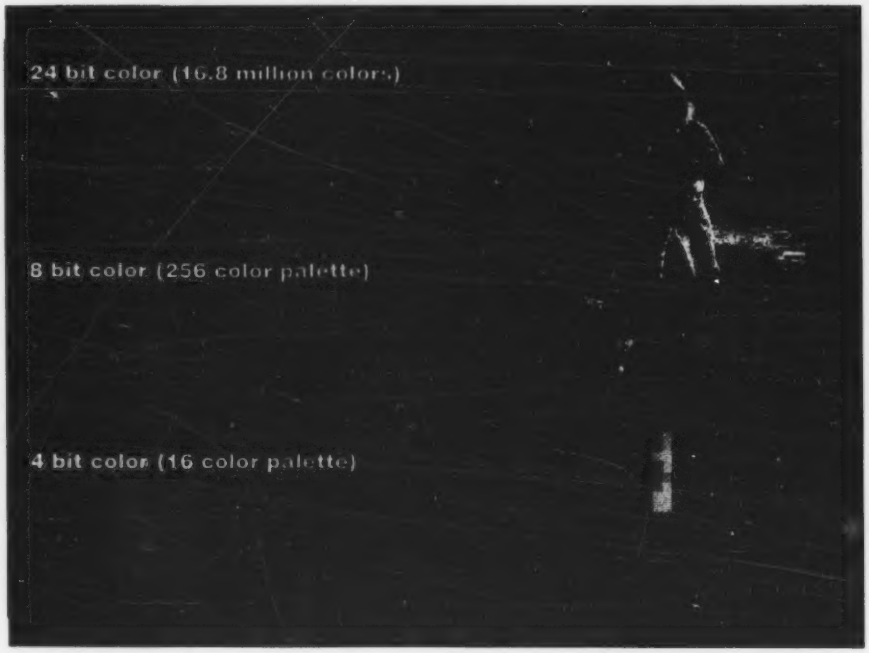

BEST COPY AVAILABLE

Image Resolutions & Storage

- **VGA (Computer Monitor)**
  - 640 pixels wide x 480 pixels high x 256 colors (8 bit)
  - 0.3 Mbytes per image
- **NTSC**
  - Effectively 700 lines x 525 lines
  - 1.1 Mbytes per frame @ 16.8 million colors
- **HDTV (Japan)**
  - 1920 pixels wide x 1035 pixels high
  - 6.2 Mbytes per frame
- **Kodak Cineon**
  - 4000 pixels wide x 3000 pixels high x 30 bit color
  - Older films require less because of lower resolution.
  - 43 Mbytes / frame => 6 Terabytes / 1.5 hour movie

Appendix 5

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Image Resolution & Storage

Digitizing a 300 page book:

- 50 lines / page
- 80 characters / line
- 6 x 8 inch page size

- **If just ASCII text**
  - 1.2 MBytes total storage
- **Scan at 300 dpi (B&W)**
  - 0.54 MBytes / page
  - 162 MBytes total storage (uncompressed)

Appendix 6

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Data Compression

- **Lossless Compression -- Regenerated data is identical to original**
  - Takes advantage of data redundancy
    - Text files: Look for commonly used repeating sequences, such as " the "; save as single character
    - Still image: Look for sequences of identical pixels (GIF image format)
    - Motion picture: Take advantage of frame-to-frame redundancy (MPEG image format)
- **"Lossy" Compression -- Regenerated image contains less information than the original**
  - Remove information which can't be heard or seen
    - Audio: Remove frequencies which "can't be heard" (Sony MD and Phillips DCC)
    - Still image: Remove subtle hues (JPEG image format)

Appendix 7

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Digital Storage vs. Film/Paper

- **Advantages of Digital Storage**
  - Smaller storage volume required
  - Information transmissible electronically on a worldwide basis
  - Key word searchable
  - Perfect, exact copies
- **Disadvantages of Digital Storage**
  - Lower practical lifetimes (10 - 30 years)
  - Resolution can be limited
  - Compression schemes can be "lossy"
  - Difficult to assess "heaith" of the storage medium
  - Catastrophic as opposed to more gradual failures

Appendix 8

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Digital Data Storage

- **Magnetic Tape**
  - Helical Scan
    - D1, D2, D3, D5 -- digital video formats
    - 8mm data grade
    - 4mm DAT (digital audio tape)
  - Longitudinal
    - reel-to-reel -- 9-track computer tape
    - 3480 / 3490 cartridge
    - QIC (quarter-inch cassette)
    - DLT (digital linear tape)

Appendix 9

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Digital Data Storage

- **Optical Disk**
  - Non-magnetic
    - CD-ROM (read-only memory)
    - CD-R (recordable)
    - WORM (write once - read many)
  - Magnetic
    - M-O (magneto-optical)
- **Other / Future Technologies**
  - Optical Tape
  - Solid State Memory
  - Holographic Storage

Appendix 10

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Optical Disk vs. Magnetic Tape

■ **Advantages of Optical Disk**

- High areal storage density (400 Mbits/sq-in vs. ~100 for magnetic tape
- Faster file access times (0.3 sec. vs. 60 sec. for tape)
- Greater MTBF because it is a non-contacting technology (30,000 hours vs. 2,000 - 10,000 for tape drives)
- Greater media lifetimes (non-contacting technology)

■ **Advantages of Magnetic Tape**

- High volumetric storage density (7 Gbits/cu-in vs. 0.5 for optical disk)
- Higher data rates
- More powerful error correction codes
- Less expensive

Appendix 11

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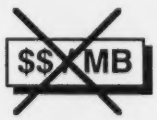
Cost of Archival Storage Media



What is the $$ of losing the information

Value per Cassette

- Cost of the cassette
- Cost of the system
- Cost of acquiring the data
- Cost of losing the data

Cost of Preserving the Data

- Cost of storage space
- Cost of maintaining a controlled environment
- Cost of data redundancy

Appendix 12

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Lasting Digital Storage Technology

- **Look for industry accepted standards**
  - Ensures compatibility of media
  - Interchangeability with other drives
  - Be wary of proprietary designs
- **Is it a widely used consumer technology?**
  - "Guarantees" the permanence of technology
  - Equipment, parts, technical support readily available
  - Less expensive
- **Beware of emerging technologies**
  - No track record
  - No standards
  - No established market

Appendix 13

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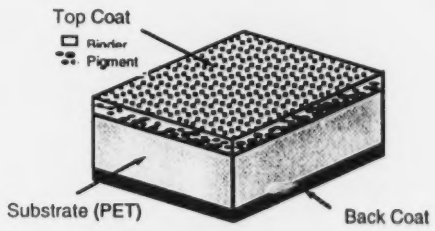
Magnetic Tape: What Can Go Wrong?



What Can Go Wrong?

Binder: Hydrolysis of Polyester Polyurethane
"Sticky" tape phenomenon
Debris/head clogs

Pigment: Loss of magnetic signal
Deterioration of particle
Self-demagnetization

Substrate: Dimensional Changes
Mis-tracking

Appendix 14

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Pigment Stability

- **Iron Oxide:**
  - γ-Fe_2O_3 is a stable oxide.
  - Cobalt modified γ-Fe_2O_3 is slightly less stable (Co is subject to attack by acids in the binder).
- **Chromium Dioxide:**
  - CrO_2 is a metastable magnetic oxide (Cr-IV).
  - CrO_2 converts to the more stable Cr-III and Cr-IV oxide forms over time (both non-magnetic).
- **Barium Ferrite:**
  - BaO • 6 Fe_2O_3 is a stable oxide.
- **Metal Particle (MP)**
  - Pure iron is chemically unstable. Particles must be protected with a passivating coating. Coating reduces, but does not eliminate particle oxidation.

Appendix 15

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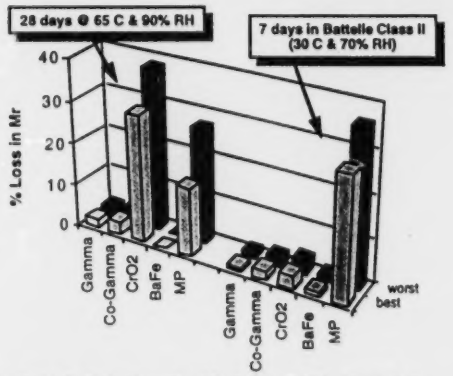
Tape Stability: T/H vs. Pollutants



Source: Dennis Speliotis, "Corrosion of Particulate and Thin Film Media," IEEE Trans. Mag., 24(1), 124 (1990)

Appendix 16

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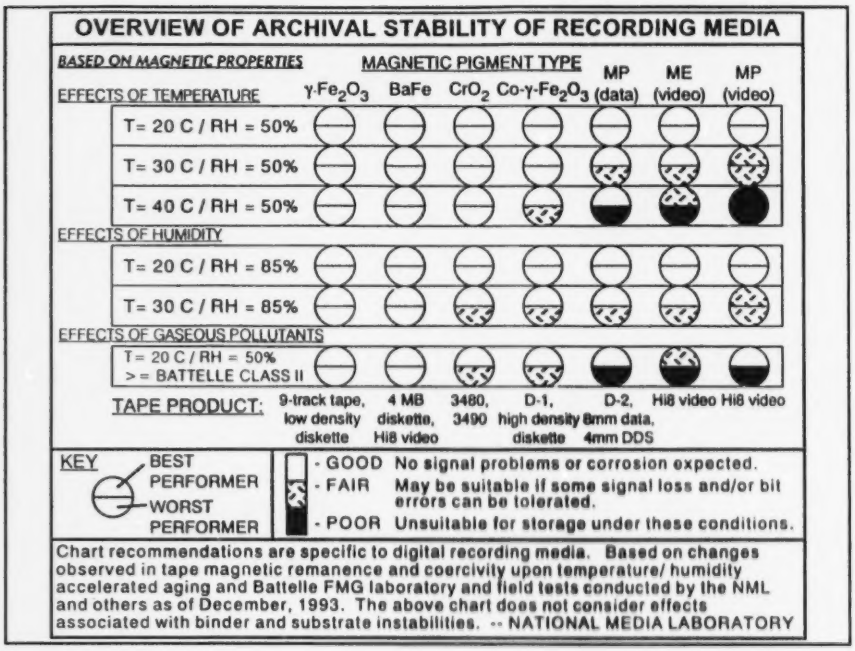
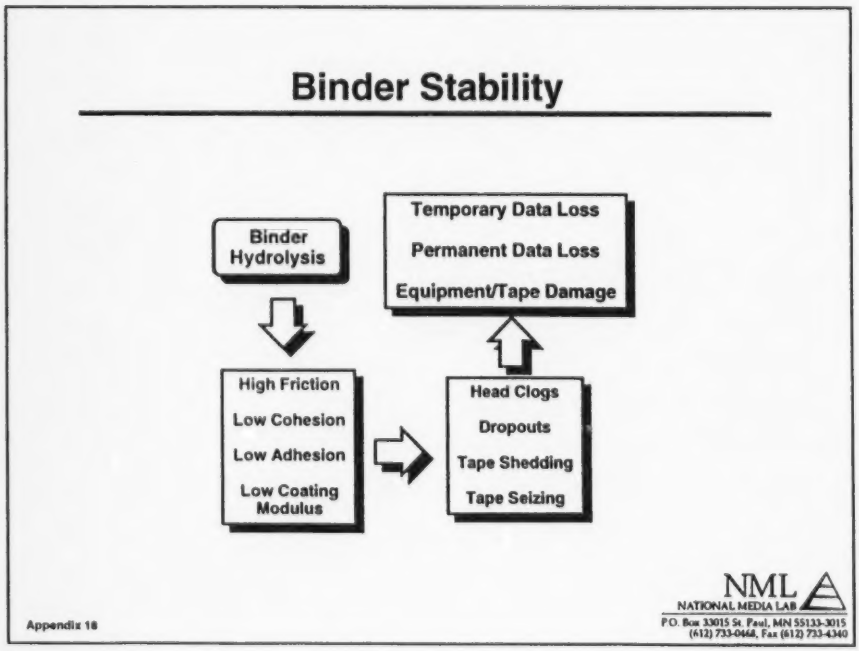

OVERVIEW OF ARCHIVAL STABILITY OF RECORDING MEDIA
BASED ON MAGNETIC PROPERTIES
MAGNETIC PIGMENT TYPE
EFFECTS OF TEMPERATURE
γ-Fe2O3
BaFe
CrO2
Co-γ-Fe2O3
MP (data)
ME (video)
MP (video)
T= 20 C / RH = 50%
T= 30 C / RH = 50%
T= 40 C / RH = 50%
EFFECTS OF HUMIDITY
T= 20 C / RH = 85%
T= 30 C / RH = 85%
EFFECTS OF GASEOUS POLLUTANTS
T= 20 C / RH = 50%
> = BATTELLE CLASS II
TAPE PRODUCT:
9-track tape, low density diskette
4 MB diskette, Hi8 video
3480, 3490
D-1, high density diskette
D-2, 8mm data, 4mm DDS
Hi8 video
Hi8 video
KEY
BEST PERFORMER
WORST PERFORMER
- GOOD No signal problems or corrosion expected.
- FAIR May be suitable if some signal loss and/or bit errors can be tolerated.
- POOR Unsuitable for storage under these conditions.
Chart recommendations are specific to digital recording media. Based on changes observed in tape magnetic remanence and coercivity upon temperature/ humidity accelerated aging and Battelle FMG laboratory and field tests conducted by the NML and others as of December, 1993. The above chart does not consider effects associated with binder and substrate instabilities. -- NATIONAL MEDIA LABORATORY


Binder Stability
Binder Hydrolysis
Temporary Data Loss
Permanent Data Loss
Equipment/Tape Damage
High Friction
Low Cohesion
Low Adhesion
Low Coating Modulus
Head Clogs
Dropouts
Tape Shedding
Tape Seizing
Appendix 18
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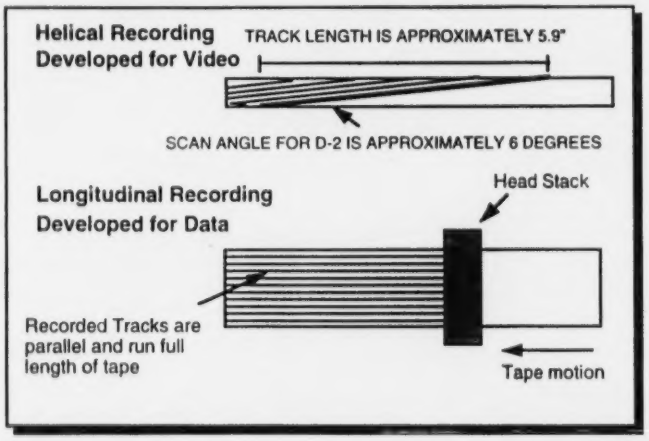
Helical vs. Longitudinal


Helical Recording
Developed for Video
TRACK LENGTH IS APPROXIMATELY 5.9"
SCAN ANGLE FOR D-2 IS APPROXIMATELY 6 DEGREES
Longitudinal Recording
Developed for Data
Head Stack
Recorded Tracks are parallel and run full length of tape
Tape motion

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Appendix 19

"Video is not Data"

	Digital Audio/Video	Digital Data
System	D2 => DD-2 D1 => ID-1 DAT (4mm) => DDS 8mm => D8 (analog)	9-track QIC 3480/3490 DLT
Tracking	Helical (prone to mistracking)	Longitudinal
ECC	Detect & Conceal	Detect & Correct

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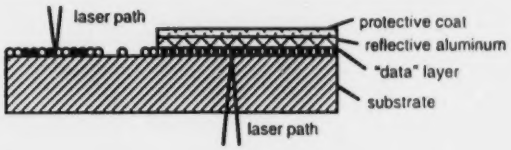
Appendix 20

Optical Disk: What Can Go Wrong?



- **Data Layer**
  - Loss of layer integrity – corrosion, cracking, delamination
  - Change in physical properties
    - Change in optical reflectivity
    - Change in magnetic properties
- **Substrate**
  - Dimensional Changes => inability to track data
  - Loss of optical clarity (scratches, crazing, chemical attack)
- **Protective Layer**
  - Loss of integrity

Appendix 21

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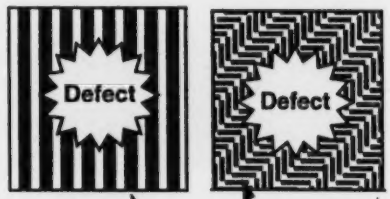
Areal Density: Impact of Defect



With a higher areal density, a greater number of bits are lost for the same defect size

Appendix 22

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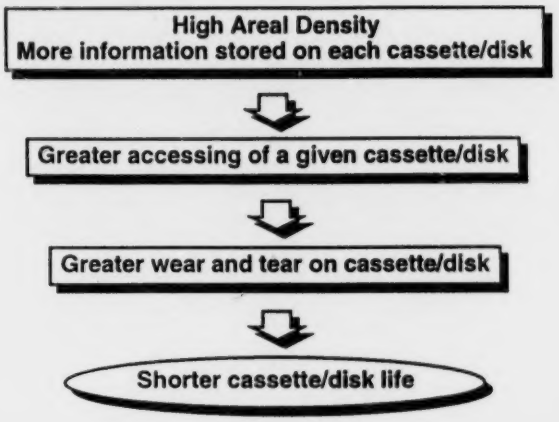
Impact of Frequent Access


High Areal Density
More information stored on each cassette/disk
Greater accessing of a given cassette/disk
Greater wear and tear on cassette/disk
Shorter cassette/disk life

Appendix 23

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Storage and Handling

- **Lower Temperatures**
  - Slower rates of decomposition
- **Lower Humidities**
  - Reduced binder hydrolysis (tape)
  - Reduced corrosion (tape/optical disk)
- **Stable Temperature/Humidity**
  - Reduced stress on media – Reduces occurrences of delamination/cracking on optical disk layers
- **Clean, Pollutant-reduced environments**
- **Controlled Shipping Conditions**
  - Low and stable temperature/humidity

Appendix 24

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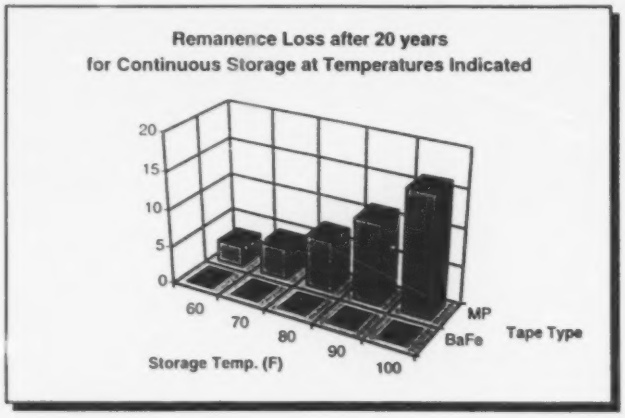
Mr Loss vs. Storage Temperature



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Appendix 25

Storage Standards

- **SMPTE & ANSI/AES Recommendations for Storage/Handling**
  - **Access storage: for lifetimes <= 10 years**
    - **moderate temperature and RH**
  - **Preservation Storage: to maximize lifetime**
    - **significantly reduced temperature and humidity**

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Appendix 26

LE Values from Trade Literature

Storage Product	Archival Life Expectancy
8mm Data Grade Tape	5-30
3480 / 3490	10-30
QIC	5-30
CD-ROM	5-100+
M-O	5-100+
WORM - 12"	10-100+
WORM - 5.25"	5-100+

Source: Various Trade Literature, Technical Reports, and White Papers

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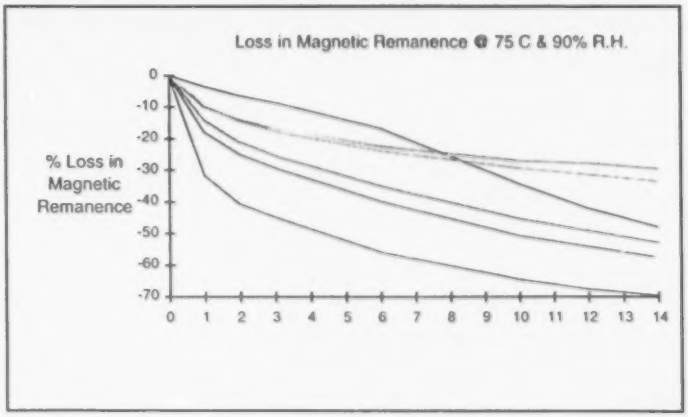
Appendix 27

D-2 Tape: Manufacturers' Durability



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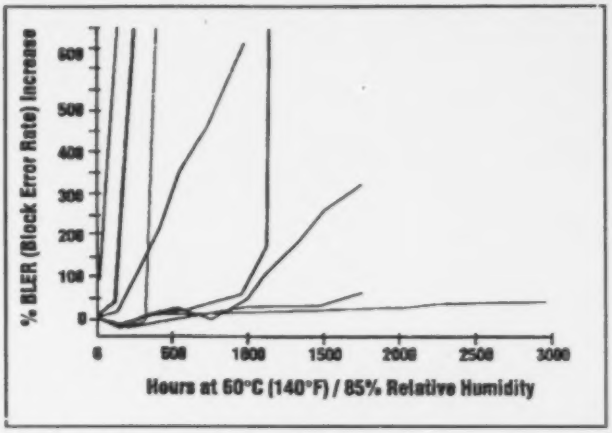
Appendix 28

CD-ROM: Manufacturers' Durability



Source: Bill Murray, "CD-ROM Archivability," NML Bits, 2(2), 4 (1992)

Appendix 29

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Practical Life Expectancy

- Technology WILL change – Migration is inevitable.
- Technical obsolescence
  - Lack of "backward compatibility" in newer systems
  - A "superior" technology may emerge
  - Inability to exchange formats
  - Use of "old" media may become impractical
- Equipment life
  - Wear
  - Parts availability

Appendix 30

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For a 100 year life . . .

- Necessary to archive system along with the media
- Sufficient supply of spares for wearable parts (heads, LED's, drive motors)
- Sufficient number of "new" systems to replace irreparable, worn out "old" systems
- Application software and host to "read" the data
- Technical expertise / service manuals

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Keep in mind . . .

- You must determine what information is important prior to digitizing.
  - There is a trade-off between resolution and storage volume.
  - How much resolution is sufficient for faithful reproduction of original source?
- Digital Storage Media has a practical life of 10 - 30 years.
  - Technological advances are inevitable
    - Companies thrive on the sale of new technologies
- Who to contact at NML . . .
  - Film Digitization: Larry Ptasienski 612 / 737-2534
  - Technology Assessment: Gary Ashton 612 / 733-8425
  - Media Stability: John Van Bogart 612 / 733-1918

Appendix 32

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ENDURING ACCESS: ISSUES AND STRATEGIES[1]

M. Stuart Lynn, President
Commission on Preservation and Access

The 19th century religious leader and educator, Cardinal John Henry Newman, wrote in his treatise on universities of libraries and librarianship as the "embalming of dead genius". As Jaroslav Pelikan points out in his own recent update on Newman's treatise, the Cardinal also wrote of the flip side of embalming dead genius, that is, the teaching role of libraries as "endowers of living genius".

It is this duality between embalming and endowing, between preservation on the one hand and access on the other, that characterizes the work of the Commission on Preservation and Access. I am pleased to be here today as President of the Commission to speak not only of the potential role of digital technologies in preservation, but also of the essential convolution that binds digital preservation with electronic access.

I shall try to position digital technologies for preservation. By this, I plan to leave you with my sense of where we are today, what is practical and what is not, and what remains to be done. Although today I shall focus on digital technologies, I must emphasize that the Commission is interested in all means of conservation and preservation to ensure continuing access. This includes, for example, what is necessary to slow down deterioration processes through environmental and other controls, as well as keeping abreast of progress in mass deacidification technologies.

The Digital Promise

We are all aware that digital technologies hold great promise for the world's libraries as well as for the publishing industry, perhaps transforming how we capture, store, disseminate, and access information, and also how we cope with the exponential growth of recorded knowledge. Talk of the National and Global Information Infrastructure, the information highway, is everywhere. The National Science Foundation, the Department of Commerce, and the National Endowment for the Humanities are funding bellwhether projects because of the potential for opening up equitable national and worldwide access to information and for collaboration at a distance. These projects are significant and deserve our support.

The focus is undoubtedly on access. There is a growing recognition, however, that access requires content, and that content requires a recognition that we must learn how to preserve in this digital environment. This holds whether objects are converted from some other form such as print, or, increasingly, originate in electronic form.

This is what the Commission on Preservation and Access is all about: to ensure continuing access to the historical record in the face of the extraordinary changes that are occurring, that is, to guarantee enduring access. Preservation is a prerequisite since without preservation there can be no enduring access. As Pat Battin, said: "Preservation is access and access is preservation." I share in the excitement surrounding electronic media, but I am deeply concerned that the need to preserve could be lost in the loose rhetoric of the National Information Infrastructure. For as John Henry Newman recognized, there can be no endowing of living genius without the embalming of dead genius first. One cannot endure without the other.

Digital technologies decline rapidly in cost and improve in performance. What is not practicable today will be tomorrow. By contrast, the costs of analog technologies such as paper, video, sound—and even microfilm—decline slowly, if at all. In fact, they tend to increase. If cost decreases occur, it is generally because of the economies of scale associated with mass manufacturing, so that, for example, the economics of traditional book and journal publishing are closely tied to the need for large markets.

However, it is not only declining costs that are providing the impetus for the shift to digital. There are other motivators, such as the reliability of reproduction and of transmission at great distances. Photocopies, for example, lose in quality at each successive stage of reproduction, as do microfilms with each generational copy. Digital data can, if done right, be faithfully reproduced indefinitely. For these and other reasons, it is only a

matter of time before the cost/performance curves cross and digital technologies come to dominate in any given area. Digital technologies, as we have noted, offer the potential for access at a distance to the intellectual resources of our libraries.

Major Obstacles

What, then, are some of the obstacles that inhibit turning the promise of digital technologies into reality, particularly insofar as preservation is concerned? I would like to briefly review three major hurdles to be overcome:

- Converting between the analog world and the digital world and vice versa, for example, scanning paper books on the one hand and providing access to those scanned documents on the other.

- Ensuring that these scanned digital documents or materials that originate in electronic form can be stored in a form that will be accessible 500 years from now to meet preservation requirements.

- Implementing the access, distribution, and navigation systems needed to provide access at a distance across the world's networks.

Analog to Digital and Vice Versa

The reality is that, notwithstanding all the potential advantages of digital technologies and at the level of actual use, analog technologies are better suited to the needs of human beings. Unlike computers, we humans do not think in 1's and 0's but prefer the warm and fuzzy world of paper, sound, and video that we can touch, see, read, and hear. One of the challenges is in how we convert back and forth between the use of digital technologies for storage and transmission and analog technologies for human presentation and interaction.

We can, for example, scan brittle books to convert them to digital images in a number of ways. Compared with a few years ago, there are today literally hundreds or thousands of institutions engaged in scanning projects. We can cruise the Internet and the World Wide Web and find goldmines of scanned text and image materials, from image collections to whole illustrated books. The energy and the excitement going into these activities can be ignored only at our peril.

However, there is a bottomless pit filled with important collections and worthy scanning projects. Unfortunately, many of these projects are concerned with access for its own sake, and do not address issues of preservation. Neither are most of the images scanned with sufficient precision to meet preservation requirements. I suggest that most of these scanned images will not be with us 50 years from now.

There are however, among these activities, a number of projects that are concerned with preservation issues. Two of the projects with which the Commission has been most involved are the CLASS and successor projects at Cornell University and the Project Open Book at Yale. Although you are familiar with these projects, I am sure, let me briefly review them to illustrate some of the issues.

At Cornell University, in a joint pilot project with the Xerox Corporation and the Commission on Preservation and Access (the CLASS Project), over 750,000 pages have been scanned—or over 1,500 books or book equivalents—in a production setting at moderately high resolution reducing them to digital form. High-quality paper facsimiles are printed from these digital images on acid-free paper, that should last several hundred years. Faculty members who have viewed these facsimiles seem to prefer the crisp new facsimiles to the brittle and often crumbling originals. The facsimiles were good enough to mute concerns regarding the necessary disbinding of the original artifact. These facsimiles can be bound and reshelved for traditional forms of access or printed on demand in response to researchers' needs.

Cornell has also prototyped network access to the scanned images from computer workstations located across the campus or even from across the worldwide Internet.

I must emphasize that we are talking about scanned pages that are essentially digital photographs, or so-called bitmap images. These images are not converted to machine-readable text through optical character recognition (OCR) technology, although there is the option of doing so later. There are several reasons for this:

1. OCR technology is not sufficiently accurate without hand editing, which is relatively expensive, particularly when applied to many of the older fonts. Cornell's goal was to develop a process that is cost competitive with microfilming. As OCR technology improves, it can always be applied later to the scanned bitmap images.

2. For preservation purposes, we often wish to capture the original format of the book, that is, to reformat. However, for preservation purposes, this must be done at sufficiently high resolution.

3. Books contain substantial amounts of image material such as halftones, engravings, and graphs, not to mention material such as mathematical equations, that do not lend themselves to OCR technology.

4 Bitmap image formats provide a lowest common denominator that enables us to capture most classes of materials and freely interchange the digital images among different computer environments.

I suggest that for retrospective digital conversion of books for preservation purposes, image scanning will dominate. Except, perhaps, for special collections, relatively few documents will be converted to structured text formats such as SGML (Standardized Generalized Markup Language). The costs would be too expensive. This is in contrast to what will dominate for new texts, particularly those that originate in electronic form.

I recognize the desirability of access to fully searchable texts, particularly in certain disciplines. The question is, however, what is economically practical. I cannot agree with those who decry the utility of network access to page images without fully searchable text: this view devalues the utility of the current library where, after all, our only method for navigation is the OPAC. There are many other ways to navigate than through full-text searching.

In the Cornell project, as with many others, image scanning is binary, which means that only black and white digital images are produced. If done at sufficiently high resolution, this is perfectly adequate for books containing text, line art, halftones and so forth, and in fact can do a better job of capturing halftones than can standard production microfilming. It is not adequate, however, for continuous tone and color materials such as photographs and maps, where other scanning technologies must be used. These present other challenges that I will not address here.

The major component of image capture and storage production costs is the labor cost of handling fragile pages. Storage costs are comparatively minor, contrary to what is often believed. These production costs are therefore quite comparable to the costs of microfilming. Cornell's studies also show these costs to be less than those of photocopying and of comparable or superior quality.

For archival purposes it is also possible to produce microfilm directly from the scanned digital images. With today's technologies, the quality of the digitally produced microfilm on the whole might not be as good as that obtained from directly microfilmed books using conventional methods; however, preliminary evidence suggests that it is good enough to meet required standards. NEH is funding a production test of this approach at Cornell.

Another way to produce digital images is to microfilm the books first using conventional photographic techniques and later scan the microfilm itself into a digital image whenever the film-scanning technology is adequate. Yale University is undertaking an important project testing this approach in its Project Open Book. The advantage is that to preserve the intellectual content of the book we can exploit the inherently higher resolution and superior archival quality of film, while providing for improved access across digital networks now or at any time in the future. Today, we may scan microfilm in production settings at relatively low resolution at some increment to the original cost of producing the original microfilm. At some point in the future, for the same incremental cost, we will be able to scan the microfilm at very high resolution that will allow us to capture the fine details of the original document. Early results from Yale's project, that is now being funded as one of NEH's experimental digital projects, are most encouraging.

Yale and Cornell are collaborating to understand the tradeoffs in the different but related approaches. There are advantages and disadvantages to both approaches. The key point is that, either way, we can have our cake and eat it, too. Interchange between the digital world and the analog world of microfilm appears both practical and achievable, the tradeoffs being ones of permanence, resolution, and speed. We can exploit the

preservation advantages of microfilm today and the access advantages of digital technologies tomorrow. We can transmit the scanned digital images to distant computer workstations for viewing, and we can print out high-quality paper facsimiles whenever and wherever they are needed.

Whatever approach is used, conversion still remains the expensive part of the process, at approximately $100 per book including the costs of selection, regardless of technology used. As with microfilming, the cost of technology is not the dominant cost—it is the labor cost of handling.

The world's investment in microfilming for preservation continues to be a wise one, in spite of the emerging advantages of digital technologies. Microfilming today does not preclude exploiting the advantages of digital access in the future. It is becoming clear, however, that these hybrid approaches must be taken seriously as a transition strategy to a world of all-digital preservation. What is needed, however, is to reduce this knowledge to production strategies and wide accessibility to the processes; to codify best practices, to turn projects into production. This is the challenge of the years ahead.

Ensuring Longevity

The second hurdle to be overcome underscores the wisdom of choosing microfilm as today's basic preservation standard. Conversion is only the first step. We must also ensure that what we convert can endure.

Unlike microfilm technology, digital technologies change rapidly. The formats in which data are stored are also subject to evolution. Standards are fluid and are often replaced even before they have matured from working to accepted standards. As a result we cannot guarantee that images scanned and stored in digital form today will be accessible even five years from now, let alone 500 years, any more than today we can easily read the punch cards of yesterday.

Contrary to what is often assumed, however, the primary issue is not the longevity of stored images on some given medium. This is certainly an important question that must be addressed, but it is not the main issue. There is no reason to assume that we will want to keep these digital books on the medium of original capture. Today, for example, we could store about 20 scanned books on a compact disk; 100 years from now we will be able to store the entire 11 million volumes of the current Widener Library in the same physical space. People ask me how long will such-and-such a medium last. My answer is, I am afraid, not longer than ten years.

Space savings alone, however, will only encourage periodic transference to new media. It is the need to keep up with changing formats, software, and other technologies that compels such periodic "refreshing" as an absolute necessity. Some preliminary and informal studies suggest that the continuing costs of technology refreshing are more than offset by cost savings associated with space compaction, an attractive feature in the context of the burgeoning costs associated with traditional library growth, although it is difficult to turn such capital funding sources into operational dollars within the traditions of library economics. It is possible to hypothesize that we will refresh not just because we have to, but because we cannot afford not to. Our challenge, however, is to formalize the task.

To this end, the Commission on Preservation and Access is pleased to be joining with the Research Libraries Group to charge a Task Force that will address the issues of digital archiving and technology refreshing, and recommend approaches and solutions. The plans for this project were shared with your Preservation Committee yesterday, and they encouraged us to move forward with this critical activity. I should emphasize that the Task Force will not just examine the technology issues but also the perhaps more difficult organizational, legal, economic, and cultural issues. Its charge is to show us the way.

In business terms, technology refreshing simply represents a form of continuous inventory management, a task that will of necessity occupy your increasing attention as you struggle to cope with deteriorating analog media, from acidic paper to videotapes. Indeed, the need to institutionalize such technology refreshing—that is, ensure that the means exist to guarantee continuous attention to the need well beyond our lifetimes—is conceptually no different from entrusting microfilm repositories to maintain in perpetuity correct temperature and humidity settings. It may, however, require us to consider the finances of libraries in wholly different ways if libraries are not to implode under the weight of exponential growth.

Indeed, many if not most libraries have already crossed the digital Rubicon of technology refreshing. Digital online catalogs replace analog card catalogs. We entrust our computer operations to maintain such digital catalogs for eternity, refreshing the databases as technologies change. Imagine the consequences to our research libraries if those digital catalogs became inaccessible because of some future disruption in the refreshing process. A library without an index virtually ceases to exist.

Indeed, we will have no choice but to face up to this issue. A rapidly growing proportion of the world's documented information both originates and remains in electronic form. We must learn how to select what must be kept, and to keep what we select.

Providing Worldwide Access

Thirdly, there is the issue of access, distribution systems, and navigation.

The promise of digital collections is that they can equitably be accessed by scholars from wherever they may be, that is, access from any place and at any time. The further promise is that as we come to implement the necessary infrastructure, the exponentially declining costs of digital technologies will ultimately place such access within the financial range of all scholars and citizens everywhere.

There are many wonderful projects addressing access and distribution issues across the globe. I do not have time to list them here. Tools such as Mosaic and Gopher have already transformed much of our thinking, and the growth of the World Wide Web has been an unprecedented phenomenon. We are excited by the investments of the National Science Foundation in digital library projects, and of the promise of the Library of Congress' National Digital Library.

We are, however, in the early stages. We still have much to learn about the best ways to store, share, index, and access digital information. Navigation among the growing cornucopia of distributed network resources presents extraordinarily difficult challenges. We must still agree on standard ways of exchanging digital information. We are only at the beginnings of understanding the complex bibliographic issues surrounding digital objects on networks. We are only now coming to grips with the difficult issues surrounding control of intellectual property, of defining fair use in the digital age, and of ensuring a fair return to copyright holders.

In capturing digital information for possible preservation purposes, we must also anticipate what information needs to be captured for later purposes of access and use. Preservation and access, embalming and endowing, are intertwined. We must anticipate the need to guarantee authenticity, and to record and hand down the provenance of original means of capture and the audit trail of technology conversions.

There are many possibilities for navigational aids, for example, between an online catalog entry and full text: capturing self-referencing parts of texts such as tables of contents, chapter headings, indexes. It is possible to anticipate that in the digital age, whole notions of authorship, citation, selection, ownership of intellectual property and classification will be transformed.

As we realize both the incremental and potentially transformational nature of digital technologies—and understand where they are useful and where they are not—we must be mindful of the primary and urgent need to ensure enduring access to those intellectual resources; and to use the mix of technologies—analog or digital—most appropriate to the task. There is much work to be done. We must reduce promising projects to production. We must codify best practices. We must build prototype digital libraries of size and scope which can test inter-institutional issues and cooperation and which can provide national testbeds for scholarly access. It is vital that projects move from single-institutional prototypes to multi-institutional endeavors if they are to scale to meet future needs.

I am delighted to see so many libraries and librarians beginning to wrestle with these issues. It is not easy to find practical pathways in times of declining funding and increasing responsibilities, and innovative and creative thinking will be required. The Commission looks forward to working with each of you in finding the right ways to chart and navigate those pathways, and to obtain answers to the key questions that must be addressed.

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[1] Adapted from a talk first given to the "Symposium on Digital Imaging Technology for Preservation" sponsored by the Research Libraries Group, held at Cornell University, March, 1994.

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PROGRAM SESSION IV

IMPROVING ACCESS TO GLOBAL INFORMATION RESOURCES

INTRODUCTION

Dale Canelas, Convener
University of Florida

ARL has been addressing the issue of access to global information resources for a number of years now. In 1991, ARL developed a grant proposal for the Mellon Foundation designed to bring together many players in order to define the problems and to propose solutions for them. It included scholars, bibliographers, collection, management directors in our research libraries, ARL directors, and scholarly societies. Involved in that project were two invitations as meetings under the auspices of the American Academy of the Arts and Sciences; appointment of an ARL collection manager director task force to provide advice and guidance to people in this project. The project direction also initiated contact with foreign area studies groups such as African Studies Association and SALAAM, each of which was asked to prepare a report for their specific areas to sum up public trends, U.S. collection patterns, problems to be solved, and recommendations for future action. It took between 1991 and 1994 to accomplish that. We now have quite a series of reports from each of these groups.

In 1993, overlapping with this Mellon project, AAU and ARL established a joint task force on foreign acquisitions which ARL used to sensitize AAU presidents to the problem and to involve them in the strategy to find solutions to these problems. The result was the Task Force Report on Foreign Acquisitions which we shared with you last May.[1]

As a follow-up to that Task Force, the ARL Research Collections Committee is overseeing three pilot projects to test distributed acquisitions and collections in order to exploit communications and computer technologies, to support distributed access, and to encourage reinvestment and change in our libraries to help us adapt to the conditions we are meeting today. Three sub-projects are in the areas of Latin America, Japan, and Germany.

The three projects attempt to cover all the basic areas of foreign acquisitions with which we are concerned. This morning, Don Riggs will present the Strategic Plan for Improving Access to Global Research in the U.S. and Canadian Research Libraries, drafted by the Research Collections Committee this summer. It is intended to serve as a guide to the Association as it moves this program forward. Professor Burkart Holzner will talk about local university actions and national scholarly alliances required to implement our plan.

Burkart Holzner is the Director of the University of Pittsburgh's Center for International Studies. The Center is the central coordinating organization for all academic international programs of the university. It is responsible for international and area programs and the expansion of area studies. Dr. Holzner is former President of the Pennsylvania Council for International Education and the Association of International Education Administrators. He received his Ph.D. from Bern University and has received several academic appointments in Asia and Europe, most recently in the Czechoslovakia Management Center, and the Chinese University in Hong Kong.

Don Riggs is the Dean of the University of Libraries at the University of Michigan. Before going to Michigan, he served for 12 years as the Dean of Libraries at Arizona State University.

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[1] *AAU/ARL Task Force Report on Foreign Acquisitions*, Washington, D.C., 1993.

Improving Access to Global Information Resources

Burkart Holzner
University of Pittsburgh

First, I will talk about the project that connects one university campus to work with the Mellon Foundation, ARL, and AAU. I was a member of the aforementioned AAU/ARL Task Force on Foreign Acquisitions and had been a typical social science professor, insisting that libraries need delivery of books on time, and I did not want to know how they get there, or how my students gather the information, with no sense of how to learn how it gets to them.

After reading the AAU/ARL Task Force Report on Foreign Acquisitions study, talking with people like Richard Ekman, and sitting with the Task Force looking at the facts, I underwent a kind of conversion and decided that this is something of which our whole campus needs to be aware. I came home from one of the first meetings with the Task Force and talked with Toni Carbo Bearman, Dean of our School of Library and Information Science, about what was going on there, and I thought it was a good idea to bring that information to campus. The theme of my remarks supports your plan for global access.

The first part of my talk will briefly summarize that experience. I will talk about the future of area and international studies. There was a conference in 1994 sponsored by OECD and the American Council of Education that tried to summarize what we know about the strategies of higher education to internationalize itself. I will make a few comments on the strategic plan and conclusions about the policy work we need to do. We assembled a national team at the University of Pittsburgh. I have mentioned already that three hundred people came to the conference, and it was an amazing experience for us that the interest went so deep and reached so far. The conference was organized around different components, and most of those 300 people who attended for the entire conference, even though some came only for the area components on scientific and technical information. These were task forces that we had set up beforehand on our own campus, and they paralleled the task force that AAU and ARL had set up. Our on-campus task force took the main draft publication of the AAU/ARL task force and reviewed it. The two views are quite divergent. There is not necessarily a one-on-one correspondence between what the campus task force thought and what the national task force thought, which is very important. They came to different conclusions. The scientific and technical information management task force was skeptical of what the school was planning, and they argued for a period where we observed, rather than active implementation of changes. The International Property Rights Task Force was very apprehensive about changes in property rights, and they made that known. They thought some of the recommendations that the AAU/ARL Task Force was proposing might have negative effects. This is not the point of my presentation. It is instead for us to make sure that we understand there are other views to be heard. The third, the Task Force on Acquisition and Distribution of Foreign Studies Materials, was in complete agreement with the national task force and highly endorsed the directions being taken in that area. It also continues to work in that direction.

In the end of this conference, we had a kind of town meeting, where we assessed our findings. I have talked with library director Rush Miller about continuing this project on campus, and also about the most important outcome of it on the campus and in the region. The conclusion is that we have to foster this mobilization and build on it so that together we can achieve real change in cooperation with each other.

Regarding the future of area and international studies, as well as the collaboration of international scholars, I think enough has been said about the changes in the world that I need only point to a few highlights. We know a dramatic structural change is characterizing our period in history. The decomposition of the Soviet Union and other things of relatively minor historical events can cause a scholarly community to change their objective overnight. I think of the rapid development in the last few years in China, Southeast Asia, and Latin America. For example, the last two years have seen dramatic changes in countries like Argentina, which nobody four years ago would have anticipated. That means a lot not just for area studies. It means a very great deal for scholarship and science in general.

Here I will show you one table prepared by a colleague which shows science production as measured by the publication of scientific articles as well as by the relative contributions to the overall production of scientific articles by different companies. Oil production in the United States has not declined, but science production in the rest of the world has risen from 20 percent to more than 30 percent in a historically short period of time. We have data that say that the American scientific community does not utilize science produced abroad as much as foreigners utilize science produced in the United States. This causes a problem which national policy is attempting to address.

Science Production in Various Countries

	1967	1993
United States	42%	35%
Japan	4%	8%
United Kingdom	11%	7%
France	6%	7%
West Germany	6%	5%
Canada	3%	4%
Soviet Union	8%	3%
Mexico	0.1%	0.4%
Rest of the World	19.9%	30.6%

From a research memorandum by Thomas Schott, Associate Professor of Sociology, University of Pittsburgh.

That means something for all of us here, librarians and scholars alike. Efforts are under way to increase American scientists' utilization of science produced abroad. We at Pittsburgh and Carnegie Mellon are the home of various projects to teach American scientists to acknowledge scientists in Japan, as well as Japanese culture. When they put all the information on the table, we want to have someone who can at least read it. Effort in that direction will undoubtedly continue.

It is not only important to know about the sciences, but also international scholarly work. This scholarly work has increased, and our universities as well as those abroad pursue strategies to internationalize their work comprehensively. You essentially have a techstronomy of international strategies pursued by higher education institutions in the United States. There are massive incentives to internationalize our universities, and most of the major universities are responding vigorously. Currently, the University of Pittsburgh is going through a kind of metamorphosis. It is changing its configuration in that the law school has decided to become an international law school, the school of engineering has hired its next dean from Hong Kong, and the school of social work pursues projects in Ireland and other places. The building blocks of international scholarship include area and language studies, which were a focal point of the AAU/ARL Task Force, but they also include much more.

Innovative strategies are the efforts on campus to provide resources, guidance, leadership, and opportunities to put into action what we have called the components of strategies. These are changes in area studies, and specifically within areas, that are reflected in the changing behavior and composition of the area studies of associations. I am happy to have access to the Latin American Studies Association since it is housed on our campus. They had 2,225 participants of whom 656 came from abroad. The changes in area studies work are profound. There is a new student body of American scholars, especially of cold war ex-patriots, who moved from the United States to look at the foreign arena. They are now becoming internationally collaborative networks of scholars who have to deal with the perspectives and the mind-set in the areas that they have studied. Their scholars are subject to criticism not only from scholars abroad but government, politics, and newspapers abroad.

These studies of programs are not the only things changing. Our disciplines are internationalizing themselves, and that is different from an area studies program becoming a collaborative effort. Many of our economists have taught graduate students who currently determine economic policy in many countries around the world. Some of the countries of Central Europe rely heavily on economics produced by graduates of the University of Pittsburgh. That is different from what is happening at international studies. We have internationalization of the businesses, disciplines, and professions, and as a consequence, the area study center on campus becomes the coordinating hub of disciplinary and professional activities. These range through the whole university, dealing with the area and managing relationships with universities as well as agencies from other countries. This is a totally different phenomenon from the area centers of the past.

I will make a few comments on the draft plan. It is very important that we have a plan like this and also that we articulate the vision. I endorse the plan, but I also want to point out certain things that concern me about the implementation of the plan. One aspect which needs to be strengthened is that of attending to collections abroad. The way in which we collect library materials in the countries of the former Soviet Union is totally different from the way we did it before. The manner in which we currently collect library materials in Latin America is different from the way we collect library materials in Germany.

The implementation of this plan is going to be expensive, and there is no way to avoid that fact. In tackling this aspect of the problem, there is no group of leaders which is more consistently silent than the university presidents. If this five-year plan is to succeed, we must mobilize not only ourselves but also larger constituencies.

We must push our university presidents to be aggressive and to articulate problems that America faces because it underfinances higher education and education in general. I am tired of hearing university presidents say that we are only realistic if we remain within the framework of existing resources and allocate those only. If that is what we have to do, then we have to scale down the plans because they will not function within the current framework. In order to do that, we need to spell out the sequence of goals and implementation actions, and we also need to build alliances. The plan as formalized has an articulate set of prescriptions regarding with whom we need to make alliances. I would like to add to that only that these must be alliances cemented on the campuses, in order to assure that the university presidents have pressure from their constituents, students, and faculty to talk to the senators, and congressmen and -women, and say, "This is important, this is what I want you to introduce on the legislative side, and this is what I want you to support."

They have to say this in the public forum where they are heard. I very much endorse the plan and add the recommendation that we mobilize our resources on the campuses.

Donald Riggs
University of Michigan

Strategic Plan for Improving Access to Global Information Resources in U.S. and Canadian Research Libraries

The plan is based on the final report of the AAU Task Force on Acquisition and Distribution of Foreign Language and Area Studies Materials that was issued in April 1994, and that was endorsed by the AAU presidents and the ARL directors at their respective membership meetings in spring 1994. The Task Force recommended the creation of a "network-based, distributed program for development of foreign acquisitions for U.S. and Canadian research libraries." The Task Force further proposed the implementation of the program with three demonstration projects targeted on research materials that originate in Latin America, Germany, and Japan.

The plan also builds on the discussions at the May 1994 meeting of the ARL Research Collections Committee. It is authored by a subcommittee consisting of Joseph Hewitt, Director of Academic Affairs, Libraries and Associate Provost for University Libraries, University of North Carolina Library; Don Riggs, Dean, University of Michigan Library; and Don Simpson, President, Center for Research Libraries. The subcommittee was charged to chart the directions of a collaborative program in foreign acquisitions beyond the initial demonstration projects. The subcommittee focused on how best to guide the transition to a larger program and suggested actions the ARL community can take to achieve improved access to and delivery of international research resources.

As envisioned in this strategic plan, the three demonstration projects will serve as the start-up phase. They will provide experience in planning for the medium-term phase that will focus on enhancing the distributed North American collection of global resources. The long-term goal would be to move toward a worldwide effort. The plan provides a conceptual framework for realizing improved access to global information resources through electronic resource sharing. It is not a tactical plan, nor a detailed survey of all issues.

PREAMBLE

As ARL libraries plan for meeting the information needs of their students, faculty, researchers, and other users in the 21st century, they face unprecedented opportunities and challenges. In the rapidly evolving environment of networked information, remote access, and desktop delivery, technology offers the potential for realizing a seamless web of interconnected, coordinated, and interdependent research collections that are accessible to geographically distributed users. Significant benefits can be seen in sharing specialized research resources (obviating the need for duplicative investments) and in improving access to the growing universe of scholarly information resources.

The challenges of building this "North American digital library" are manifold. One challenge is how to manage the complex transition to national and ultimately international networked collections. Equally daunting is how to manage global resources, when print-based materials will co-exist with digital documents and when retrospective collections will continue to be primarily print-based. It is clear that investments in print-based materials will continue to be necessary through an extended period of transition. There is a critical need to strengthen and advance area librarianship and to expand the number of area librarians with appropriate subject, language, and professional preparation to develop, organize, and service research collections and resources in a world area. Another challenge is how to balance and harmonize institutional user priorities with the demands of a broadened and enlarged user community. Still other challenges are the technical barriers, capitalization of computing and communications technologies, funding of user access, and management of intellectual property issues. As the pace of technological change accelerates, the pressures will intensify to develop appropriate financial structures and to clarify policies concerning copyright in the electronic environment. The funding that

will be needed is substantial. Meeting these challenges will depend on the actions ARL libraries take between now and the end of this century.

The goal is to restore the range of significant foreign publications to the national collection of books, serials, and other forms of scholarly information adequate for the support of research, teaching, and scholarship. Despite increasing emphasis, in both the public and private sector, on international interdependence ("the global village"); despite increasing commitments in the research universities to fostering "internationalization" in both the curriculum and in research; and despite the exponential growth of available foreign language titles in general, American and Canadian research libraries have had to reduce acquisitions of foreign publications because of financial constraints.

The members of the ARL Research Collections Committee believe that ARL libraries have unparalleled opportunities to work together in developing a program for cooperative collection management of international research resources. They also believe that this collaboration should be guided by an overarching vision, continuing collective consultation and development of an action agenda. To that end, the following articulation of a vision and goals proposes the strategic directions toward developing the architecture and management structure for creating a network-based, distributed program for coordinated collection development of foreign language, area and international studies materials among U.S. and Canadian research libraries. While recognizing that support for cooperation and collections in all areas is needed, the focus of this plan is global resources. This strategic plan describes a system in which participating research libraries would share responsibility for collecting foreign imprint publications, and would function as access nodes in a "distributed North American collection for foreign materials." Implicit is coordination and cooperation in cataloging and preserving these materials.

Vision

By the beginning of the 21st century, ARL libraries will have made significant progress toward building a seamless web of interconnected, coordinated, and interdependent research collections that are electronically accessible to geographically distributed users. ARL Libraries will play central roles as both providers of print-based global research materials as well as access points for users to global resources that will be increasingly in electronic form. Through shared planning and action, the libraries will broaden the breadth and coverage of global information resources in North American research libraries and serve as electronic gateways for ubiquitous access to these information resources. Coordinated collection management will ensure ownership in the research libraries community of materials needed as well as networked access. What is envisioned is the systematic development of digital library collections and information services. Users will have access to global information resources across different systems.

Realizing this vision of the North American digital library will allow research libraries to move to the "just-in-time" model of resource sharing while offering users "just-in-case" desktop access and delivery capabilities. It will also build the foundation for electronic resource sharing on a global basis.

Goals, Objectives, and Strategies

Goal I

To enhance the capabilities of North American research libraries to acquire and make available global information resources in support of education and research.

Objective: To build a broad-based commitment to maintain global information resources adequate to meet scholars' needs.

Strategies:

(1) Focus national attention on the critical role of research libraries in acquiring and delivering global information resources.

(2)Continue ARL's collaboration with the Association of American Universities to monitor the initial implementation of the three demonstration projects.

(3) Build partnerships with scholarly associations, such as American Council of Learned Societies, National Resource Center Directors and other international education groups to work in a common enterprise directed toward improving access to global information resources.

(4)Promote federal investment in supporting research libraries to develop and maintain comprehensive collections of international research materials.

Goal II
To enrich collections of global information resources in North American research libraries.

Objective: To build on the richness and strengths of institutional academic programs and collections and to extend the total number of unique titles available in North American research libraries through institutional cooperation and coordinated collection development.

Strategies:

(1) Organize and implement a North American distributed, networked program for acquiring and delivering global information resources in print and digital formats.

(2)Implement the program through an evolutionary process in three phases.

(3)Launch in the short-term phase three demonstration projects to test network-based access, delivery, and consultation services.

(4)Begin planning for the medium-phase to encompass other areas beyond those targeted by the demonstration projects.

(5)Move toward a worldwide effort (long-term phase).

Goal III
To achieve effective network user access to global research materials.

Objective A: To improve access to and delivery of information, with emphasis on building the electronic infrastructure.

Strategies:

(1)Develop the infrastructure to acquire, store, organize and distribute large collections of digital information.

(2)Utilize existing national efforts and build on the experiences of cooperative regional programs (e.g., National Federation of Digital Libraries, CAN-Linked Initiative, Research Triangle University Libraries, CIC Universities, etc.)

Objective B: To speed the availability of electronic resources both through funding institutional digitization projects and encouraging publishers to make materials available in electronic formats.

Strategy:

Promote and monitor pilot projects to convert research materials to digital format.

Objective C: To improve document delivery services.

Strategy:

Build on the efforts of the ARL Interlibrary Loan and Document Delivery (NAILDD) Project to redesign interlibrary loan and document delivery systems.

GOAL IV

To develop the management structure for overseeing and guiding the technical and policy aspects of the evolving program.

Objective A: To develop a stable mechanism to provide continued leadership in extending the program to a North American program for improved access to global resources.

Strategies:

(1) Charge the ARL Research Collections Committee to propose a management structure and funding strategy that will guide the ongoing operation of the program and support the goal of a distributed North American collection.

(2) In cooperation with the ARL Statistics Committee prepare benchmarks/guidelines for ongoing analysis of the state of foreign acquisitions and the cataloging of foreign materials in specific disciplines.

Objective B: To utilize existing programs such as those operated by the Center for Research Libraries, the Library of Congress and other consortia.

Strategy:

Examine existing, complementary cooperative arrangements and information delivery services.

Objective C: To provide effective involvement of all stakeholders.

Strategies:

(1) Plan a symposium on foreign acquisitions to be sponsored jointly by ARL, ACLS, and the Library of Congress.

(2) Engage the scholarly community in shaping the North American program for managing foreign acquisitions.

Objective D: To promote the education and continuing development of area librarians.

Strategies:

(1) Work with the library education community to meet priority professional preparation and development needs of area librarians.

(2) Support the evolving national action plan to strengthen and advance area librarianship.

GOAL V

To develop the North American distributed library for access to global information resources.

Objective A: To build the network of coordinated, interdependent collections.

Strategies:

(1) Charge the ARL Foreign Acquisitions Task Force to address the operating issues in the implementation of the demonstration projects.

(2) Develop a three-year tactical plan to scale up and to extend the program to areas beyond those encompassed by the three demonstration projects.

(3) Work with foreign area library committees (e.g., Africana Librarians Council, CONSALD, WESS and similar groups) to develop plans for coordinated collection growth and resource sharing.

(4) Establish a process for developing collaborative selection mechanisms and collecting agreements among research libraries for expanding North American holdings and access to global information resources.

Objective B: To ensure the protection of fair use rights.

Strategy:

Monitor efforts to strengthen copyright legislation in relation to intellectual property rights in the electronic environment.

Goal VI

To develop and maximize financial resources for building and maintaining the North American distributed collection of global resources.

Objective: Develop a long-term financial strategy for sustaining the program.

Strategies:

(1) Seek funding for demonstration projects.

(2) Promote reallocation of acquisitions funds to support shared access to digitized resources.

(3) Develop multiple funding sources, including national investment, to support the North American distributed library for access to global information resources.

Goal VII

To strengthen collaborative programs with foreign libraries, archives, and information services.

Objective A: To support and strengthen exchange programs between North American and overseas research libraries.

Strategies:

(1) Promote closer coordination and better understanding of existing exchange programs.

(2) Explore collective exchange programs.

Objective B: To promote electronic resource sharing on a global basis.

Strategies:

(1) Work with the Library of Congress, National Library of Medicine, National Agricultural Library, National Library of Canada, Canada Institute for Scientific & Technical Information, and other "national" institutions in forging collaborative programs with foreign national libraries.

(2) Establish partnerships with cooperative programs in other parts of the world.

Approved by:
The ARL Research Collections Committee
October 19, 1994
Endorsed by ARL Board of Directors
July 25, 1995

PROGRAM SESSION V

NEW RESEARCH DIRECTIONS AND FEDERAL FUNDING OPPORTUNITIES

INTRODUCTION

James Neal, Director
Milton S. Eisenhower Library, Johns Hopkins University

We have with us today five distinguished individuals who will represent the perspectives of the White House National Economic Council, the National Science Foundation (NSF), the National Aeronautical and Space Administration (NASA), the National Telecommunications Information Administration(NTIA), and the Library of Congress (LC) on our subject.

Thomas Kalil is the current Director of the National Economic Council with responsibilities for science and technology issues. The Council is a new White House organization created by President Clinton to coordinate economic policy. Prior to joining the Clinton-Gore team, Mr. Kalil was a trade specialist in Washington. He has a B.A. in Political Science and International Economics from the University of Wisconsin and completed graduate work from the Fletcher School of Law. Mr. Kalil will moderate the program.

Yi-Tzuu Chien is the Director of Information Robotics Tele-informations Systems at the National Science Foundation. He received his Master's and Ph.D. degrees in Electrical Engineering from Purdue University. He has served on the faculty of the University of Connecticut, and he spent two years at the Art Intelligence Consultants Center at the Naval Research Laboratories. Dr. Chien is the author and is a member of the American Association for Artificial Intelligence.

Paul Hunter is Program Manager for Information Infrastructure and Technology for NASA's Office for High Performance Communications. Previously, Mr. Hunter worked at the Naval Research Laboratory in Washington, D.C. and the Naval Service Weapons Center in Silver Spring, Maryland. Mr. Hunter has a B.S. degree in physics from Wilkes University in Pennsylvania, one M.S. degree in Physics from the University of Maryland, and another in computer science from Johns Hopkins University.

Laura Breeden is the Director of Telecommunications and Information Infrastructure System Program, Infrastructure Division, at the National Telecommunications and Information Administration of the Department of Commerce. And prior to joining NTIA, she was the executive director of FARNET, the Federation of American Research Networks. She obtained experience in national fundraising Hofstra America in Boston, Massachusetts. Ms. Breeden is widely published, including 51 Reasons.

Jane Bortnick-Griffith is Acting Chief of the Science Policy Research Division for the Congressional Research Service at the Library of Congress. She is also a specialist in information technology, providing analytical support to Congress concerning information technology. She received her Master's degree in History from Rutgers University and is a fellow of the American Association for the Advancement of Science, as well as of the American Society for Information Science (ASIS).

Attached are overheads from the presentation.

THE TELECOMMUNICATIONS AND INFORMATION INFRASTRUCTURE ASSISTANCE PROGRAM

Laura Breeden
Director, Telecommunications and Information Infrastructure Assistance Program, NTIA,
US Department of Commerce
tiiap@ntia.doc.gov
(202) 482-2048

THE NATIONAL INFORMATION INFRASTRUCTURE AGENDA FOR ACTION

- Promote private sector investment
- Extend the "universal service" concept
- Act as a catalyst for technological innovation
- Promote seamless, interactive, user-driven operations
- Ensure information security and network reliability
- Improve management of the radio frequency spectrum
- Protect intellectual property rights
- Coordinate with other levels of government (national and international)
- Provide access to government information

GOALS OF THE TIIAP

- Provide funds for planning and demonstration projects to:
- promote the development and widespread availability of advanced telecommunications technologies
- enhance the delivery of social services and generally serve the public interest
- promote access to government information and increase civic participation
- support the advancement of an advanced nationwide telecommunication and information infrastructure

FAST FACTS

- $26 million appropriated in FY94 under PL 103-121
- Clinton-Gore Administration requested $100M in FY95 and $150M in FY96
- $64M appropriated for FY95
- Program announced in *Federal Register* March 4, 1994
- More than 1,070 applications received

ABOUT THE APPLICATIONS

- From all 50 states plus DC, Guam, Marianas Protectorate, Puerto Rico, & Virgin Islands
- Total Planning requests: 257
- Total Demonstration requests: 813
- Total dollar amount requested: $562M
- Distribution by type:

Community information	203	$109M
K12 education	197	102M
Higher education	182	97M
Health	112	70M
Government	99	36M
Public Information	78	39M
Libraries	44	18M
Social Services	28	14M
Arts & Culture	27	5M
Public Safety	24	16M
Science, disabled, etc.	80	56M

ABOUT THE AWARDS

Category	#	$ in millions
Community networking	27	7.4M
Health	14	4.6M
Government	15	3.3M
Education (K-12)	14	2.8M
Education (Higher)	7	2.4M
Libraries	5	1.8M
Social Services	2	.9M
Public Information	4	.6M
Arts and culture	2	.3M
Science	2	.2M
Public Safety	1	.1M
Totals	92	*$24.4M*

90

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LIBRARY PROJECTS FUNDED

Colorado Department of Education

Newark Public Library

Rockbridge Regional Library

San Francisco Public Library

Southeastern Library Network, Inc.

Danbury Public Library

Public Library of Charlotte and Mecklenburg County

ROLE OF THE LIBRARY IN THE NII

The public library

- Universal service
- Community information
- Training and brokering

The depository library

- Access to government information
- Acquisition and preservation

The Research library

- Education
- Publishing
- Preservation
- Organization

A FEDERAL R&D AGENDA?

(Laura's Wish List)

1. An information architecture that will scale; *or*, ten million Gophers can't be wrong, can they?

2. Intelligence in the network; *or*, personally, I'm ready to throw in the towel on the users.

3. A return to the wisdom of Gertrude Stein; *or*, whatever happened to common sense?

FOR MORE INFORMATION

ftp or gopher to:

iitf.doc.gov

/pub/grantinfo

email to:

tiiap@ntia.doc.gov

NASA'S INFORMATION INFRASTRUCTURE TECHNOLOGY & APPLICATIONS PROGRAM

presented to:

Association of Research Libraries
Annual Meeting

Washington, DC
October 21, 1994

Paul Hunter
NASA Headquarters
202-358-4618

IITA OVERVIEW

Goal:

Accelerate the instantiation of a National Information Infrastructure

Approach:

Collaborative/Cooperative Research and Development Programs in

- Digital Library Technology
- Applications of Remote Sensing Images obtained via Internet
- Education, Training, and Lifelong Learning
- Aerospace Design and Manufacturing

Benefits:

- Public access to naitonal science data assets
- Innovative applications and pilots for utilizing this data
- Increased opportunities and access for small and large businesses
- Increased opportunities and access for state/local governments
- New curricula tools for K-12 education
- Seed future applications/industries
- Accelerated aerospace design and manufacturing processes

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DIGITAL LIBRARY TECHNOLOGY

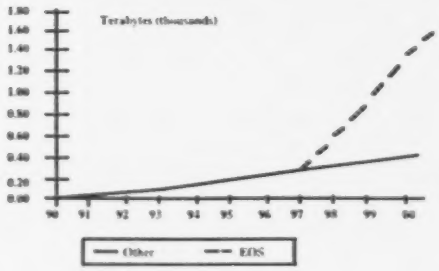
Goal: Develop and demonstrate the technologies needed to build digital libraries to electronically disseminate NASA science data

Approach: Initiate collaborative projects with academia and industry to advance research and develop in digital libraries

Recent accomplishments:

- Announced 6 cooperative agreements and grants for digital library technology (August, 1994) arising from NASA Cooperative Agreement Notice CAN-OA-94-1
- Others in negotiation
- Jointly announced (with NSF & ARPA) 6 awards for Digital Library Research projects with UCSB, UCB, Stanford, CMU, U. ILL, U.MI

PROJECTION FOR NASA DATA



THE ROLE OF DIGITAL LIBRARY TECHNOLOGIES

- Providing fast access to terabytes of data
- Delivering remote sensing images and data as easy as withdrawing a library book
- Developing an intellectual foundation for organizing tremendous amounts of complex information
- Integrating raw scientific data and refined products with important ancillary information
- Opening up the publicly financed national data repositories to the general public without an enormous increase in infrastructure

EDUCATION, TRAINING, AND LIFELONG LEARNING

- Goal: To empower American educators and students to utilize the evolving National Informatino Infrastructure to meet their educational needs
- Objectives:
  - Leverage the nationwide NASA education programs
  - Reach out to a broad cross section of the education community
  - Impact early stages of education (middle school and earlier)
  - Inspire students with NASA mission applications
  - Enable students to become electronic information explorers
  - Facilitate communication among separated communities to empower synergistic collaborations
  - Bring real NASA science to teachers and students

A CLOSING THOUGHT

Our current approach to information resembles our old agricultural policy. We used to store mountains of excess grain in silos throughout the Midwest and let it rot while millions around the world died of starvation... Now we have silos of excess data rotting (sometimes literally) while millions hunger for the solutions to unprecedented problems.

== Al Gore, *Earth in the Balance* (Boston: Houghton Mifflin Co., 1992), 201.

APPENDIX I

ARL BUSINESS MEETING
PRESIDENT'S REPORT

MR. BLACK: Since we just have approximately an hour to conduct the formal business of the Association this afternoon, I will begin with a mercifully short president's report. The actions of the Association and the Board over the past few months are well known to all of you via the electronic list and via other means, but I do want to highlight actions from the Board Meeting held Tuesday of this week.

First of all, the Board elected Nacny Cline of the Pennsylvania State University the Vice President/President-Elect of the Association. (Applause.)

Unfortunately, Nancy is not with us this afternoon. She is in Texas speaking at the Total Quality Forum hosted by Texas Instruments. She sends her regrets at her absence today. I know that she will be a very effective Vice President-Elect and future President of the Association and I will convey your best wishes to her.

The second action that I want to report to you from the Board Meeting is approval of the concept of participation in a Shared Legal Capability for copyright. This is in response to the Clinton Administration's initiatives that address questions about the fair use and the library use of copyrighted materials in an electronic environment. The SLC will involve collaborating with like-minded organizations, with a view to alerting policy makers and library users to the issues and the impact of legislative proposals on current rights.

The Board also discussed a number of other topics that I will go through very briefly for you. One was the design of a process to involve members and committees in a regular review of ARL's development priorities. The second was discussion of the ARL/AAU joint initiative to implement the AAU Research Libraries Project recommendations.

We discussed changes that were needed to assure the future of the Coalition for Network Information, and also discussed the expected outcomes from the recently established ARL Working Group on Network Resources. These were the main activities of the Board on Tuesday.

For the second item on our Business Meeting agenda, I will call on Jerry Campbell as chair of the Nominating Committee to put forward the slate for nominees to the ARL Board.

MR. CAMPBELL: John, thank you. The Nominating Committee was made up of Charles Miller, Carla Stoffle, and myself. I want to express our thanks to you, the membership, for providing us with a large number of names to consider for service on the ARL Board. We are now placing in nomination the names of Nancy Eaton, Jim Neal, and Barbara von Wahlde.

MR. BLACK: Thank you very much, Jerry. Are there any further nominations from the floor? Hearing none, I think the proper action is just to approve the motion of the Nominating Committee. All those in favor, indicate aye. (Chorus of ayes.)

MR. BLACK: Any opposed? (No response.) The slate is acclaimed. Thank you. (Applause.) I welcome Nancy, Jim, and Barbara to the Board and appreciate your willingness to serve the Association.

Establishment of 1995 Dues

MR. BLACK: The third item on our agenda this afternoon is the establishment of the 1995 dues. As President of the Association, on behalf of the Board, I bring you the recommendation that the dues for 1995 be $13,350,

which represents an increase of $750. I place that as a formal motion on the floor. You received a memo in September outlining the rationale behind the increase and the nature of the increase. The floor is open for discussion. Any discussion?

MS. ALEXANDER: Martha Alexander, University of Missouri. John, I have a question about something in the September memo. I notice that under the cost control activities noted in the background information, one of the cost cuts made in the past five years was reducing expenditures for legal services. At the same time, under long term program concerns, legal counsel is listed as the second priority. The statement is that ARL members' investments in both information policies and scholarly communications seek an orderly, expert, reliable, and affordable technical legal support mechanism in order to initiate, respond, and observe the scene as necessary. It seems to me that what we are saying is that our practice is in conflict with our need. I want to know a little bit more about this. There are a number of reasons why I would be willing to support dues increases, and certainly having sound legal advice is one of them. I would like to know more about how this is being handled and what the plans are.

MR. BLACK: I will turn to Duane Webster for a response.

MR. WEBSTER: The cost control efforts related to limiting advice from legal counsel have mostly concerned the operational activities of the Association. There had been, over a number of years, increasing expenditures as a result of advice on a number of different activities or operations of the association. As a cost control measure we reduced use of legal counsel for anything other than absolutely essential matters such as those where there might be opportunity for litigation against the Association.

For example, we did seek counsel about the subpoena that Gordon and Breach served on the Association in order to secure files related to Professor Barshall and his work with the American Institute of Physics. We went to counsel to get advice on how to comply with that subpoena.

However, we try to use the legal counsel on an exceptional basis only. What is being considered in terms of the developmental priorities for the Association is the need to prepare to fight the fight in relation to copyright. It is in this area that we feel that we need to invest program funds to secure the best legal counsel that we can get in order to make the case for fair use and library use in the electronic environment. Certainly in any revision of copyright legislation we need to have the best legal advice that we can get. That is going to cost us money, and it is going to cost us probably more than what we can afford as a single association. That is why we seek to form a consortium of like-minded organizations in order to bring together resources for that talent. In addition, we will continue to use pro bono legal talent on copyright issues whenever we can.

But, again, over the last five years we tried to minimize the use of legal counsel for advice on operational matters dealing with the potential of litigation. In that way we have been able to save a considerable amount on legal fees.

MR. BLACK: Thank you, Duane.

MS. SMITH: Barbara Smith, the Smithsonian. I believe this is the first time I have addressed this body and, ironically, it might be the last. I will tell you what I am faced with. In the Smithsonian, any membership fee that exceeds $10,000 must be justified annually. This year my provost is especially questioning of the dues increase, noting that dues have almost doubled over the past five or six years, and this one represents close to a six percent increase.

He notes also that the Smithsonian views itself as a research and educational institution with some 900 researchers, faculty, and with a tradition of leadership from the academic community. Our current Secretary is

the former chancellor at Berkeley. He is somewhat annoyed that, for example, the Association chooses not to rank the Smithsonian with what he considers our counterparts, the universities. He notes that although we have a very, very modest budget, that we pay the same dues; and although we have fewer than 10,000 current serials, we pay the same dues as an institution with 96,000 current serials. He is pushing me mightily to find ways to justify the amount of money that our modest budget is giving to ARL in the form of annual dues.

I noted the discussion of the Task Force on Membership Issues, which addressed the associate membership notion, and it occurred to me that associate membership might be a way out of the dilemma I am in. It may be a way for institutions such as the Smithsonian to continue membership, although I am sure the ARL will survive the loss of the Smithsonian. I am wondering whether an associate status for the Smithsonian and like institutions which ARL does not apparently consider mainstream might be considered.

MR. BLACK: To some extent the question does overlap, as you point out, with the report from the Task Force on Membership Issues. Perhaps it might be better, with your permission, Barbara, to hold any response to your question on associate membership until that agenda item. Then perhaps Gloria Werner, who chaired the Task Force, would make some comments on your question in that context.

The Board certainly recognizes the problem that you are facing, and the issue of dues is a common problem for many institutions within ARL.

Are there other comments on the substance of this motion?

MR. KELLER: Michael Keller from Stanford. I have three comments and/or questions. In the opening paragraph in your memo covering this dues recommendation, John, there is a statement that indicates that the budget takes into account moving forward on initiatives like the AAU Research Libraries Project. Then I turn over on this page under Item 2 where there is a statement at the end of the first paragraph which says, "Implementing the AAU Research Libraries Project through redirection of current programs will not currently require an increase in the ARL dues." Is there a contradiction there, or am I misreading something?

MR. WEBSTER: What we are saying is that, rather than looking at a dues increase to support the implementation effort, the Board has advised that we redirect some current programs to focus on that implementation effort.

For example, although the Office of Academic and Scientific Publishing already has a full and active agenda, Ann Okerson, Director of that office, has been assigned the responsibility for focusing the implementation efforts and working with the AAU staff.

But, again, what we are trying to do is to make the AAU implementation issues a core part of our ongoing programs rather than coming to you and asking for additional dues support in order to do that set of work. Now, to the extent that we have been able to get soft money to do some of that, we have and we will.

MR. KELLER: But you have also come to us for money for some of those programs, and some of us are contributing almost as much as our dues for those very activities.

MR. WEBSTER: For the AAU Latin American Resources demonstration project, we have requested those institutions that want to participate in that project to contribute $3,000 each. This was in part a way of attracting additional funding from the Mellon Foundation which required, for them to give money, that they had to see institutional commitment in the form of some financial support. We are familiar with that as a device. So yes, we have had to ask for help on different levels in order to pursue the AAU agenda, but we are trying to do the core of it — support for the Steering Committee, reports to membership, the publications that are being distributed

more broadly — we are trying to do that out of current dues funding rather than asking for an enhancement of dues for that purpose.

MR. KELLER: The second point is that this dues increase for the second year is twice the increase that was allowed to my staff, and I, like Barbara, have some problems with that. That is just a comment.

The third is a suggestion. In the upcoming fight that will be long and, I think, tedious on the question of copyright and intellectual property rights, the publishers, the for-profit publishers in particular, will invest millions of dollars in lobbyists and in lawyers. I should think that we would want to be spending some money and getting some high-priced representation and some assistance to collaborate with others of similar mind on these important issues. I do not necessarily think we want to raise dues to do that. As is happening in my institution, the Association may want to look at what we are doing to change current practices, or to reduce the investment that is made to some programs, in order to invest in other programs. Thank you.

MR. BLACK: Other comments?

MS. BENGTSON: Betty Bengtson from the University of Washington. I certainly endorse Michael's suggestion that ARL review its current programs. In our own libraries we are trying to decide what we can give up in order to do new things, and I think the Association needs to apply that discipline to its activities as well.

I also have a question about the multiyear dues strategy. We had a dues increase last year, there is one proposed for this year. What are the prospects for the next year and beyond? I would like to put this in a context.

MR. BLACK: I would ask other members of the Board, if they wish, to respond, but I do not think one can say for certain what the prospect will be. To some extent it depends on the Association membership and on the Board itself deciding what the priorities and the level of effort of the association should be.

I am going to talk a little bit later about the process that we are trying to put in place to address the multiyear dues strategy that to which Betty Bengston refers.

What we are trying to do, I hope, will go some way towards what you are suggesting. It is a process to involve the committees and, to some extent, the membership as a whole in looking at the programs of the Association, targeting the priorities, and identifying changes in the programmatic activities in order to live within the budget. I would not want to guarantee, however, that there will be no dues increase. I will let Jerry do that.

Your point is well taken. A fundamental assumption of the Board's financial strategy, going back to 1989, is that there will not be an increase in dues above the range of inflation unless there is a corresponding increase in programmatic activity that is approved by the membership. Phil?

MR. LEINBACH: Phil Leinbach, Tulane. I want to join my colleagues, Michael and Barbara Smith, in really finding objectionable this amount of an increase in the dues. I particularly note what Barbara said that they have more than doubled in five years. I recall speaking here four or five years ago and saying that I hoped we would not see increases beyond what many of us get in our budgets.

I have had two to three percent increases in my general operating budget for the last several years. The provost keeps telling me just to swallow the uncontrollable increases in telecommunications or photoduplication costs, equipment, whatever it is. And I have swallowed about all I can. It is not an issue of dollars. It is a percentage that is double what I am getting in my budget and it is disturbing. I really think we must find some

way of holding increases in our dues to be more in line of what many of us — and I know it is not everyone, it may not even be the majority — are getting in their general operating budget.

I am sure the Board has considered this very carefully. We do hear this every year. You probably spend a lot more time on it than we are going to spend on it today, and probably some Board members are saying the same thing. But somehow now for five years, at least, we seem to end up in this range of figures that is at least double what many of us are getting in our budgets. I think we ought to consider whether 5.6% is really what we can take out of our budgets next year.

MR. BENNETT: Scott Bennett, Yale. I am a little sympathetic with the tenor of the comments that have been made, but only a little. So I speak in dissent from them.

I think if we are going to have this kind of conversation, the most productive way for us to conduct it is for us to identify activities that ARL is now engaged in that the speakers think are not as important as others so that there is some guidance from the membership to the Board about where cuts should be taken. But that is not the main thrust of what I want to say.

The main thrust of what I want to say is we are looking at $750 and what it will buy for us, and I think that it will buy a whole lot, and that the record of delivering very high value that the Association has is entirely admirable. When I look at my options for spending 750 hard-wrested dollars, I can identify but few that are as good or better than this one.

We are talking about reallocation all the time, and I am quite happy to reallocate a few hundred dollars to get the kind of value that ARL delivers to its members.

MR. BLACK: Thank you, Scott.

MS. BENGTSON: I want to clarify that I do believe that we have been getting value for our dues, and I applaud many of the programs that ARL has undertaken. I am as much in favor of our changing our priorities as anyone. But I would encourage a review process. I could certainly stand here and give you a list of things that I think are of lower priority, and I am sure that the rest of the members could perhaps do the same thing. But I think that there needs to be a process for that sort of review rather than this kind of forum.

MR. BLACK: Thank you.

MS. SHAPIRO: Beth Shapiro, Rice University. I would like to second what Scott said. I feel that we get an awful lot for our money. I have been struck at the last several ARL meetings and in between meetings by the sort of national profile that ARL has accomplished within higher education and within the information technology industry. I think that this is due in large part to the work of Duane Webster and the work of the staff. And I think that it is important that we build into the budget planning for ARL that the staff are rewarded for this. We must not get in a situation where we do not have enough money to provide staff with adequate pay increases to hold onto the excellent staff that we have within ARL.

In addition, there are other initiatives which are terribly important and that we need to have the funds to be able to support. I do not want to say that $750 is a drop in the bucket. It adds up and, it can get to be onerous for some of us. But much like Scott, I think that it is a reallocation of dollars, and I see this as something that is very important for us to do.

MR. BLACK: Thank you, Beth.

MS. SLOAN: Elaine Sloan, Columbia University. I would like to add to what Beth and Scott have said. Perhaps there are not a lot of us who can recall the time prior to the last five or so years of continued increases. I think that if we think back to what the Association has accomplished in these five years, that we would be hard put to think of other investments that have rewarded us collectively and, I believe, also individually.

So I would urge that we pass this dues increase. I am certain that the Board has heard the words of concern and caution that the membership has expressed.

MR. STAM: David Stam from Syracuse University. I would like to say that the last 15 minutes have been a virtual recap of the Board discussion, especially with the latter comments that have been made. It was not a unanimous recommendation of the Board. There were those who felt, as many have felt here, that the percentage was really the thing more than the dollars, but the Board as a whole did think that the programs that were outlined for coverage by this budget were so important that we should, as a board, take that risk. In that vein, I think we have to go ahead with the vote because there are a lot of other things to discuss today.

MR. BLACK: Thank you, David. The question has been called. All those in favor of the proposal to increase the dues by $750.

(Show of hands)

Opposed?

(Show of hands.)

I have recorded the number of opposed as five. The motion carries. Thank you.

The next item on our agenda relate to the issue of dues increase. That is, the effort by the board to develop a multiple year financial strategy for program development. We have had extensive discussions within the Board, and a draft paper about the development of such a multiple year strategy. As indicated in the memo that went out in September regarding the dues increase, the Board has identified five horizon issues that should be significant focal points for ARL program activities: federal relations; legal counsel, especially in terms of the issue of intellectual property rights and responsibilities; minority recruitment; refreshing the management programs; and access to research resources. These five issues, plus continuing to build the ARL reserve fund, represent the Board's judgement for priority funding.

The Board will distribute a paper to the membership in the next several months that outlines a process for developing a multiple year financial strategy for the association. This process will seek the involvement of each ARL committee in outlining a three to five-year plan for each priority activity.

We anticipate that draft multiple year plans will be reviewed at the ARL Board's planning meeting in February when the 1995 program priorities are reviewed. During the winter, February through April, plans for each activity will be more fully developed for further discussion at the May 1995 meeting. Following discussions in May, ARL staff will prepare estimates of the financial requirements associated with the strategies proposed for '96, '97, and '98. These estimates, in turn, will be considered at the July meeting of the board which is when we consider the budget and dues for the next year.

Going back to a point you made earlier, Betty Bengston, that is the kind of process that is anticipated, and we will be getting a paper to you that outlines these steps in more detail. We had hoped to have it ready for this meeting. We did discuss it at length at the Board meeting on Tuesday, and it is just not quite ready to go. But that is the scheme that is being prepared.

That should provide a mechanism for articulating the requirements of those activities, in priority order, and achieve, I hope, a financial plan that will meet the requirements that have been discussed here.

MS. CRETH: Sheila Creth, University of Iowa. Do you intend to bring this somehow to the membership, maybe at the May meeting, giving us an idea of what the committees have seen as their priorities and program directions and the costs associated with them, so the whole membership has a way of being informed before the budget is decided in July?

MR. BLACK: That was not in the original scheme that was being suggested. However, we will be discussing it further within the Board. It is certainly a point, Sheila, that we could work into the process. I am trying to think of how it would work in terms of timing, but it would have the very valuable effect of informing the membership of what the level of involvement is and what the fiscal commitment would be for each of those program activities. So I would suggest that we take that back into the Board discussion.

Now I am going to move to the next agenda item on the business meeting agenda, the ARL mission and strategic objectives. Member representatives received a memo in advance of this meeting describing recommended changes in ARL's mission and strategic objectives. Kent Hendrickson and Jim Williams will present the Board's discussion on that matter.

MR. HENDRICKSON: I think the first thing to report is to describe the effort that went into this review of ARL's mission and strategic objectives. Jim, Jaia Barrett, and I spent hours on e-mail looking at mission and revision statements from countless other organizations, and brought back this recommendation to the board in July. Well, we did our best job, and this is it. I move approval.

MR. WILLIAMS: Just a little explanation. Our incoming president did charge us with a concern that he had that our mission statement needed to be refreshed to be sure it reflected a bias for action. That is what we tried to put into this revision. We certainly invite much discussion. Thank you.

TO: Directors of ARL Libraries

FROM: John Black, on behalf of the ARL Board of Directors

RE: Mission and Strategic Objectives Recommended by the Board

On the agenda for the October 21 Business Meeting of the Association is discussion and action on the following, refreshed mission and objective statement for the Association. A Board review of the statements adopted by Membership in 1989 concluded that a significant revision was not required. However, it was recommended that the language be modified to reflect a more action-oriented organization. The following is put before Membership for discussion and adoption.

***

Association of Research Libraries

... shaping and influencing forces affecting the future of research libraries in the process of scholarly communication.

The mission of the Association of Research Libraries is to shape and influence forces affecting the future of research libraries in the process of scholarly communication. ARL programs and services promote equitable access to, and effective use of recorded knowledge in support of teaching, research, scholarship and community service. The Association articulates the concerns of research libraries and their institutions, forges coalitions, influences information policy development, and supports innovation and improvement in research library operations. ARL is a not-for-profit membership organization comprising the libraries of North American research institutions and operates as a forum for the exchange of ideas and as an agent for collective action.

UPDATE OF ARL STRATEGIC OBJECTIVES

[incorporates changes proposed in January & July Board discussions as well as Committee discussions]

Objective 1. Scholarly Communication and Information Policies

To understand, contribute to, and improve the system of scholarly communication and the information policies that affect the availability and usefulness of research resources.

[no change]

Objective 2. Access to Research Resources

To make access to research resources more efficient and effective.

[no change]

Objective 3. Collection Development

To support member libraries' efforts to develop and maintain research collections, both individually and in the aggregate.

[no change]

Objective 4. Preservation

Current wording:
To promote and coordinate member libraries' programs to preserve their collections.

At the request of the Board, Preservation Cte. discussed the wording of the objective in May and recommend following revision.

To support member libraries' efforts to preserve research collections, both individually and in the aggregate.

Objective 5. Technology

To assist member libraries to exploit technology in fulfillment of their mission and assess the impact of educational technologies on scholarly communication and on the role of research libraries.

At request of the Board, the wording of this objective is the same except that the two points of the sentence are reversed.

Objective 6. Staffing

To identify [on an ongoing basis] the capabilities and characteristics required for research library personnel to best serve their constituencies, and to assist member libraries [and educational programs] in the recruitment, development, and effective use of staff.

The changes proposed by the Board in January are shown in brackets.

Objective 7. Management

To assist member libraries in augmenting their management capabilities.

[no change]

Objective 8. Performance Measures

To describe and measure the performance of research libraries and their contributions to teaching, research, scholarship, and community service.

This is a new objective. In January, the Board was uncertain if this should be an entirely new objective or if it should be incorporated into Objective 7. In May, the Statistics & Measurement Committee agreed with the addition of a new, separate objective.

MR. BLACK: I will take that as a motion from the Board to adopt this revised mission statement. However, we are open for a brief discussion. Are there any areas that anyone would like to raise, not wanting to cut off discussion? (No response.) If not, could I have an indication of approval, please? All those in favor?

(Chorus of ayes.)

Opposed?

(No response.)

MR. BLACK: Thank you. The next item is a report from the Association Membership Issues Task Force. Gloria Werner, chair of the Task Force, prepared a report that you received in advance of this meeting.

MS. WERNER: I am tempted to follow the good example of Kent and Jim, but I am not sure I can get away with that. But I do want to be brief here.

In a beautiful fashion, Bill Crowe introduced this topic this morning during a program session, and I trust that you have already read our task force report. The most enjoyable part of it, as far as I am concerned, was the appendix to the report prepared by Kendon Stubbs, and its conclusion. If you remember, Kendon refers to Sherlock Holmes, and concludes we cannot form the bricks of new membership criteria without the clay of access data.

There are two recommendations in the Task Force report that require approval by the membership as a whole. I should tell you that the Board has twice looked at our recommendations, and it has approved them. But we definitely do need a wider approval here.

The first item is really a clarification of how we assess the common characteristics of the universities in ARL. Our proposed change is more in line with how higher education looks at our institutions. We are recommending that ARL adopt the Carnegie classification definitions for Research Universities I and II as the first institutional criteria by which to evaluate potential new university members. That is one of our recommendations.

We tried to see if we could build into the membership criteria index some access measures that would be valid. I think, as Kendon's paper points out, although the spirit was willing — well, I do not know what the metaphor is at this point. We really did want to do it, but we failed. So we are turning this back to the Statistics and Measurements Committee. From the program discussions this morning, I am very hopeful that they are going to make good progress.

Our second recommendation, then, is that until the quantitative ARL membership criteria index can be broadened to include new measures of access, that we agree to examine the case for institutions that do not quite satisfy the current index threshold but can furnish strong evidence of unusual qualitative strength. The driving philosophy here, which underlies what I term a qualitative criterion, is the nature and diversity of a library's contributions not only to its parent institution, but also to the distributed, North American collection of research resources.

So those are our two recommendations, John, that require approval of the membership.

MR. BLACK: Thank you very much, Gloria. Again, a report from a committee. I do not think we require a seconder. I will first seek discussion on those two recommendations, and then suggest we discuss the earlier point that Barbara raised. But first let us deal with these two recommendations specifically.

Any comments or observations on the recommendations?

(No response.)

All in favor?

(Chorus of ayes.)

Opposed?

(No response.)

Carried. Now, I think this would be an appropriate time to revisit the comment that Barbara made. Gloria, will you comment on the discussion that you had within the task force on the issue of associate membership?

MS. WERNER: In honesty, when we examined the question of a potential associate membership category in ARL, we were not focusing on our current membership. We were thinking of libraries in the Independent Research Libraries Association, the National Archives, research institutions that do not meet our quantitative

criteria. So, to be very direct, Barbara, we simply were not thinking of current members. We did, however, have some lengthy discussions that may touch on this topic, and that was related to ARL Canadian members. There was a question as to whether our Canadian colleagues should pay in Canadian dollars or at a lesser rate than our U. S. colleagues. The consensus on that issue, that turned out to be quite strong, is that we did not want to differentiate and have some kind of "second class" of membership. That does not directly answer your concern, Barbara, which I think we all share. But as we looked at associate members we were not thinking that they would have voting rights. They would, in essence, be members at a different level than what this audience currently represents.

Do others on the task force care to comment?

MR. BLACK: Any other comments or observations on this? Having had the issue raised, it is something that the Board can take back for further discussion. I am not sure that we could resolve much further here apart from identifying it as a potential discussion item.

Any comments from others on that issue?

MS. WERNER: John, I do want to remand our task force report. There was a very glaring omission in the list of people who were helpful in working on this task force. So the minutes need to reflect that Nicola Daval was our inveterate and marvelous staff support.

MR. BLACK: Thank you. And thanks to Nicky, too, for her role on the task force.

We will move on as we are rapidly moving through our allotted time. One of the features of the business meetings for the last three or four years, starting with the Montreal meeting, has been an opportunity for an off the record open forum for discussion of concern to the membership.

REPORT OF THE TASK FORCE ON ASSOCIATION MEMBERSHIP ISSUES

The task force has carefully considered the three elements in its charge--new membership criteria, special categories of membership, and Canadian issues--and can report as follows.

1. New Membership Criteria

We began our work at the May 1993 membership meeting in Hawaii in complete agreement that it was highly desirable to broaden the current criteria for ARL membership to include access measures, a library's ability to deliver information to users (whether owned locally or obtained elsewhere), and to recognize in some way the variety of attributes associated with the move to a transformed research library--be it in the form of digital libraries or the new paradigm of the virtual library. Translating that goal into action, however, has eluded us. As Kendon Stubbs's thought-provoking "white paper" on Access and ARL Membership Criteria (see Appendix 1) makes clear, we do not at the present time have sufficient or meaningful quantitative data upon which to broaden and revise the existing membership criteria.

We therefore RECOMMEND:

> that the ARL Statistics Committee and the new ARL statistics program officer concentrate their efforts on the identification of access measures which can be used to broaden or supplement the current statistical index. We believe that ARL's traditional measures of size should be augmented in the future to include factors measuring use of information resources and electronic access to them. The challenge is to define meaningful quantitative data for measuring these factors. Our ability to do that has not yet been achieved. In sum: we aren't there yet.

Our review of current membership criteria, approved by the ARL Board in 1990, was influenced by publication in 1994 of a revised Carnegie Classification of Higher Education by the Carnegie Foundation for the Advancement of Teaching (see Chronicle of Higher Education, April 6, 1994, p. A17-26). One of the distinguishing characteristics of university libraries that belong to ARL is the unique nature of the research universities of which they are a part. The 1994 Carnegie Classification defines Research Universities I and II as follows:

Research Universities I: These institutions offer a full range of baccalaureate programs, are committed to graduate education through the doctorate, and give high priority to research. They award 50 or more doctoral degrees each year. In addition, they receive annually $40 million or more in federal support.

Research Universities II:... In addition, they receive annually between $15.5 million and $40 million in federal support.

We RECOMMEND:

> that ARL adopt the Carnegie Classification definitions of Research Universities I and II as the first criterion by which to evaluate potential new university library members.

This approach has several advantages. It eliminates the current arbitrary requirement that new member institutions offer one-half the doctoral degree programs of the association's initial 35 members. Instead, the emphasis is placed on the commonality of institutional characteristics defined by a classification widely accepted in higher education. One further benefit to this approach is that the number of U.S. institutions eligible for consideration is somewhat larger than the current pool--by 32, to be exact. Although Canadian institutions are not included in the current Carnegie Classification, similar data can be supplied by Canadian applicants to ARL.

A second criterion for ARL membership can be defined as quantitative. Until such time as the ARL Statistics Committee is able to quantify measures of access and output, the ARL Membership Index will need to serve as the benchmark. We assume that the ARL Membership Index will in future be supplemented by access measures, once the latter have been developed and tested.

A third criterion for ARL membership can be defined as qualitative. Does the library make a significant contribution to North America's research collections and services, thereby contributing to research and scholarship beyond its own university? Patterns of evidence here would include:

a. services to the library and scholarly community, including the availability of electronic resources, and the creation of bibliographic records and their availability on one of the major bibliographic networks;

b. the library's distinctive research-oriented collections and resources in a variety of media of national significance;

c. the nature of use made of the collections and services by faculty, students, and visiting scholars;

d. the preservation of research resources;

e. the leadership and external contributions of the staff to the profession; and

f. the effective and innovative use of technology.

The driving philosophy here is the nature and diversity of the library's contribution to its parent institution and to the distributed North American collection of research resources.

We RECOMMEND:

> that until such time as the ARL Membership Index can be broadened quantitatively to include new measures of access, those institutions that do not quite satisfy the current index threshold of -1.65 be considered for membership if they can furnish strong evidence of unusual strength relating to criterion 3 above.

2. Special Categories of Membership

Here, again, we began our work with more enthusiasm than the net results indicate. Conceptually, we could see value in establishing an associate membership category that might include the National Archives or selected members of the Independent Research Libraries Association (IRLA)--institutions with collections of national significance though perhaps with fewer than 1 million volumes. One eligibility requirement of such libraries would be their willingness to make their collections available to scholars (which most or all of them do) and to make bibliographic data about their collections available through a national utility (a criterion which some of them are not yet in a position to do.)

Discussions with several IRLA members about this option have been inconclusive. Although one potential member in this category was intrigued at the personal networking and political advantages of joining ARL, he noted that many IRLA members are facing dire financial circumstances and might view associate membership at circa $4,000 per year difficult to support. (Associate membership could involve attendance at ARL meetings in a non-voting capacity, receipt of ARL publications, and the like.) To what extent IRLA members could meet the recommended requirement that bibliographic data about their collections be accessible via national utilities is also unclear. 107

Given the above factors, we RECOMMEND:

that ARL not pursue special categories of membership at this time

3. Canadian Issues

ARL is, at the present time, a binational organization comprised of research libraries in the United States and Canada. Canadian members currently number 14. Approximately three or four university libraries which may be eligible have not applied thus far for membership. Most of ARL's programs are of direct benefit to Canadian members. One example of an ARL program that does not benefit Canadian members directly is the federal relations program, although there are many indirect benefits (e.g. a Canadian project is being developed as part of the ARL GIS program.)

After weighing the pros and cons of this issue, we RECOMMEND:

that Canadian members continue to pay the same dues as U.S. members at the U.S. dollar rate.

Task Force Members:

John Black
Kendon L. Stubbs
Margaret A. Otto
Duane Webster, ex officio
Gloria Werner, Chair

July 8, 1994

August 23, 1993

Access and ARL Membership Criteria

"Data! Data! Data!" he cried impatiently. "I can't make bricks without clay."
— Sherlock Holmes, in Arthur Conan Doyle, *The Adventures of Sherlock Holmes*

I. Summary

The existing ARL membership criteria are (1) quantitative, and (2) derived from the most typical characteristics of current members. If we look for access measures that are similarly quantitative and reportable by the membership, we find only a modest number of data categories. Those that the members most easily accommodate are categories like interlibrary loans, circulations, reference transactions, with a handful of newer categories such as number of opac records. Though not without interest, these categories do not seem to sum up "access" as fully as the traditional measures such as volumes held and current serials sum up the archive model of research libraries. In statistical analysis, moreover, the few access variables fail to define communalities among ARL members.

A national search has been underway for viable access measures in the NISO library statistics work, in the IPEDS committee, and within ARL itself in its studies leading to its 1992 "Inventory of Library Access." From these efforts some new measures of expenditures for document delivery, hardware and software, and other categories will be tested in this year's ARL supplementary statistics. These measures may not be the holy grail of access data, however.

Starting from the end of a new paradigm for ARL membership and working backwards, imagine what new ARL members may look like. It is suggested that Carnegie-Mellon may be one kind of model of a new research library. But in traditional resources and services, C-M has little in common with current ARL members. How could its contributions to research librarianship be measured? Not through volumes held or current serials or total expenditures; rather through partly quantitative, partly qualitative, data on services such as its gopher services, its links from bibliographical records to digital images, and its Internet contributions.

Since access data are not now available for new membership criteria, it is suggested that ARL should return to the agenda posited by the Statistics Committee in Charleston in 1992. This agenda recommended focusing on the identification of access measures partly through intensive sampling of a subset of ARL members. Carrying out this agenda is not in accord with the timeline of the Membership Committee, but it seems to be a *sine qua non* for defining the access measures needed for new membership criteria.

II. Access Measures

A. Existing Data

The two chief characteristics of the current ARL membership criteria for academic members are (1) that they are quantitative, and (2) that they epitomize the most typical features of current ARL members (that is, in factor analysis terms, the "communalities"). These features—volumes held, added volumes, current serials, total staff, and total expenditures—are the basis for the ARL membership index. In her paper last year on new directions for ARL statistics, Sarah Pritchard pointed out that "access" is hidden in measures such as total expenditures and total staff. Nevertheless, the five variables that contribute to the ARL index are widely viewed as predominantly features of the traditional or archive research library. A task before the Membership Committee is therefore to identify variables that measure "access" more directly.

If we follow the principles that have been in place for ARL membership criteria since the 1960s, we need to search for (1) quantitative data, and (2) data that the ARL members collect or can collect. It doesn't take long to find the little bit of access data currently collected. Several variables are in the ARL statistics, some in the ARL statistics supplement, and some in the 1992 "Inventory of Library Access." For U.S. members the IPEDS surveys add to these one or two items; but the additional categories are probably not of much interest in delineating access—public service hours, for example. From the regular ARL statistics we have interlibrary lending and borrowing. From the supplement there are computer files, opac records, percent of records converted, group presentations, circulation and reserve transactions, reference transactions. The "Inventory of Library Access" has 13 questions on "Automation" or "Access Services Provided"; but 8 of them are yes/no questions (e.g., do you provide on-campus document delivery?), and the other 5 are about numbers of public terminals and ports, that is, mostly about hardware for local users. The Inventory tells us, for example, that in 97 ARL libraries the median number of public opac terminals is 64. It is hard to conceive of this, however, as a very significant measure of access, in the way in which volumes held or current serials measure the traditional library.

The most widely reported numbers that may measure some parts of access are thus the ones from the ARL statistics and supplement: interlibrary loans, computer files, opac records, percent converted, group presentations, circulation/reserve, and reference transactions. Each of these has its problems. Attention has recently been focused on interlibrary loans. But the ratio of borrowing transactions to initial circulations in ARL libraries is under 4%: meaning that over 96% of usage of physical items in ARL libraries comes from on-site materials (if usage is defined in terms of staff-mediated transference of a physical item to a user). The data on computer files are unrelated to any other currently collected data, and it is hard to know how to interpret those numbers. Group presentations, circulations, and reference transactions are all useful measures of on-site activities, but probably fall short of the wished-for access measures. Of the existing data, only opac records reveal some interesting correlations that may begin to

get at access. In multiple regression a good model relates circulation/reserve to volumes held, total students, and numbers of opac records. In ARL libraries in 1992, above a given base, there were 21 circulations for each fulltime student plus 1 for each 11 volumes held plus 1 for every 5 opac records. For a given enrollment and collection size, circulation usage increases by 1 for every 5 opac records added to the database. In the median ARL library in terms of circulation/reserve transactions, each 1,600 records added to the database would increase circulation by about 1%. So in opac records we have a demonstrable link between an access service and usage (if not research). At the same time, someone has said that the 1980s were about retrospective conversion and opac records (or meta-information), while the job of the 1990s is online full texts and images (or the information to which bibliographical records are pointers). From this standpoint opac records are less exciting as a future-orientated ARL membership criterion.

If circulation, reference transactions, opac records, and even interlibrary loans induce a certain amount of the blahs as access measures, statistical analysis makes them even more problematical as tests for membership. They cannot just be plopped down in the ARL index. That is so strongly dominated by the traditional measures of volumes held, current serials, total expenditures, etc.—which in fact do describe the most visible characteristics of ARL libraries very well—that circulations, opac records, ILL, etc. are swamped by the traditional records. They are given so much less weight by the analysis that they add almost nothing to what is already in the index.

An alternative is to form a new index from the variables such as circulations and opac records. When one tries this, it turns out that the new variables, so to speak, won't lie down together. None is very much correlated with the others. The analysis, in short, can't find the *communalities* among them. It is as if the members are following one pattern for opac records, another for circulations, a third for interlibrary borrowing. And none of them seems to have much relation to traditional measures like size in volumes or current serials or expenditures. Each needs to stand by itself. Conceivably we could devise membership criteria like the ones in force before the ARL index, where applicants would have had to exhibit at least 50% of the median opac records or circulations or ILL borrowing of ARL members. These kinds of criteria make somewhat strange bedfellows, however. Within ARL the top 5 libraries in ILL borrowing, as reported, are Illinois at Chicago, Illinois at Urbana, Ohio State, Indiana, and Pennsylvania; the top 5 in circulations are British Columbia, Harvard, Toronto, North Carolina, and Kansas; the top 5 in opac records are Toronto, Harvard, Illinois at Urbana, UCLA, and Stanford. And it is likely that non-members could exceed substantial numbers of ARL members in measures like circulations and ILL. (For example, a few years back I found that libraries like Miami-Dade Community College surpassed many ARL members even in the traditional measures. And public libraries can easily show higher access through activities like circulation.)

In summary, existing data do not offer a persuasive solution to the problem of access measures for ARL membership. As a practical matter, what this means for the Membership Committee is that there isn't a quick fix that is (1) quantitative, and (2) derived from current ARL members.

B. New Data?

It is not inconceivable that efforts underway will identify access measures that could serve as ARL membership criteria. Certainly it is worthwhile to continue regarding this matter as an opportunity rather than merely a problem. Nevertheless, a great deal of effort nationally in the U.S. has so far produced pretty slim pickings. The revised NISO standard on library statistics will presumably be issued this fall. Its "access" measures are the conventional ones of circulations, reference transactions, etc. ARL itself a few years ago had a visiting program officer who surveyed the literature on access measures (including ACRL's then unpublished *Measuring Academic Library Performance*) in order to identify new data that ARL could collect on access. This effort resulted in the Inventory, which is a compromise between what the ARL Statistics Committee really wanted to know (what numbers measure the contributions of research libraries to published research?) and what the committee thought members could reasonably provide. The U.S. IPEDS committee, with ARL representation, has similarly been struggling with might and main to find workable access measures to incorporate into the biennial IPEDS library surveys. The fall 1994 questionnaire is now almost final, and adds to the traditional questions a few new questions in the area of expenditures. These questions in turn will appear in the ARL supplementary questionnaire that is ready to be issued by the ARL office.

The new questions that the ARL supplement will test this fall are for expenditures for (1) computer files and search services, (2) document delivery/interlibrary loans, (3) computer hardware and software, and (4) bibliographic utilities, networks, and consortia. It may be that useful information will come out of these questions delineating at least the levels of funding for automated and delivery services. It is hard to predict yet what the response rate will be to these questions. On non-traditional questions tried by ARL or IPEDS, the initial response rates are often fairly low—sometimes half of ARL members or fewer. It is hard with such rates to draw quantitative conclusions about the membership, much less to try to discriminate between ARL members and non-members.

The results from the supplement will not be ready till spring, however. And the IPEDS results for non-members will not be ready till late 1995 at the earliest. These new data therefore will also not offer quick help in access criteria for ARL membership.

III. An Access Experiment

If an objective of the Membership Committee were merely to increase the membership, that could be done easily by lowering the score needed by prospective members on the traditional index. According to the 1991 ACRL statistics of university libraries, ARL could then offer membership to libraries such as Montreal, Loyola of Chicago, Ohio, Boston College, and Bowling Green State. Duane Webster suggests, however, that a more important point may be to redefine ARL's membership philosophy by looking to contributions to the North American

distributed research collections (where, presumably, "collections" has a wider scope than traditional printed materials).

In grappling with this redefinition, I found it useful to try what Einstein called a "thought experiment." What would be the result for adding members if the ARL philosophy could be redefined? What kind of members would be added? Let me suggest that a new vision of ARL academic members might include libraries like Carnegie-Mellon. Carnegie-Mellon is widely regarded as a leader in library automation and more recently in provision of bit-mapped images of texts and images. In the new world of electronic information, I suspect that Carnegie-Mellon has as much to say to ARL members as the members have to talk about among themselves concerning traditional materials and services. How does Carnegie-Mellon compare with current ARL members in available data categories?

If the ACRL universities are ranked according to the ARL index for 1991, C-M scores -3.6, putting it in the same area as libraries like New Hampshire and New Mexico State. According to ACRL, it had about 800,000 volumes (compared with 1.3 million at the smallest ARL library), 4,000 current serials (compared with 11,000 at the ARL library with fewest serials), 125 total staff (about the same as the smallest ARL library), and $4.1 million in total expenditures (compared with $5.5 million at the smallest ARL library). The traditional way of assessing research libraries would reject C-M as different in degree, if not also in kind, from existing ARL members. Having posited C-M as a desirable ARL member in a new ARL paradigm, however, we need to ask how C-M's contributions to the electronic library would be measured.

The answers clearly are to be found not in the traditional measures of volumes held, current serials, total expenditures; maybe not even in the supplementary and IPEDS measures of expenditures for computer files and hardware and document delivery. C-M's contributions to library technology and electronic access are more likely to be measurable in areas such as gopher and other Internet activities, links from bibliographic records to full texts with remote printing, networked CD-ROM carousels, etc. If so, then ARL will need new ways of measuring prospective members.

Note that you do not have to agree that C-M is a probable ARL member in a new paradigm in order to agree that measures not now available will be necessary for a new kind of membership. Pick another example of a library that does not meet current criteria but is noted for cutting-edge electronic services, and you are likely to find that what distinguishes it cannot really be measured by circulations or ILL or numbers of opac records or even expenditures for hardware or document delivery.

IV. Back to the Future

At the Charleston meeting in 1992 the ARL Statistics Committee agreed on what it called the Charleston manifesto. The manifesto was aimed largely at the opportunities or problems of developing new access measures for describing research libraries. The manifesto called for a statistics program officer to lead a concentrated effort in the identification of access measures. One of the identification tools suggested by the committee was statistics gathering among a small sample of ARL members, say, the members represented on the Statistics Committee. How do they measure access in their own libraries? How might they measure access, without an undue reporting burden? For example, which libraries in the sample have library gophers, and what kinds of meta-information and information are available on them, and most importantly, how is usage of the various sections of the gopher measured?

Progress on the Charleston agenda has been unavoidably delayed during the search for a statistics program officer. My guess, however, is that ARL will need to go through the process of assessing the kinds of access information available in a sample of its members before it can come to grips with access criteria for new members. Duane's suggestion of a combination of membership criteria, both traditional archival measures and new access measures, may come out of this further exploration. I would also guess that purely numerical criteria for membership will not be possible. Rather, the criteria will need to mix numbers with qualitative analysis of questions such as: Do you have a library gopher? What categories of information are available on it? What measures do you have of usage by both local users and users not connected with your institution? And so on.

It is always disheartening for a committee to recommend that the answer to its charge lies in another committee. Nevertheless, I believe that the Membership Committee cannot form the bricks of new membership criteria without the clay of access data, which is lacking at present. It therefore seems appropriate for the Membership Committee to ask that the Statistics Committee pursue its agenda of access measures with as much speed as possible. When this process is further along, the Membership Committee (or *a* membership committee) could return with well-founded vigor to new membership criteria.

Kendon Stubbs
University of Virginia Library

EDITOR'S NOTE:

Mr. Black concluded the open forum discussion with a presentation of certificates of appreciation to Sul Lee and Susan Nutter for their contributions to the Association during their tenure as members of the Board of Directors. Ms. Nutter was also honored for her leadership role as ARL President during 1992-93.

Mr. Black thanked the Membership, the Board, and ARL staff for their support during his term as president. In recognition of the transfer of the office of president, Mr. Black presented the ARL gavel to Jerry Campbell. Mr. Campbell concluded the Business Meeting with Announcements and adjourned the meeting at 5:13 p.m.

Report of the Executive Director

Duane E. Webster
Association of Research Libraries

Executive Director Duane Webster gave his report on the following:

- Intellectual property in an electronic environment. Two things have raised the visibility of this issue:
  1) the Clinton administration's interest in revision of the copyright laws of 1976
  2) the AAU/ARL Intellectual Property Task Force recommendations
- Development of distributed network-based digital libraries.
  1) There has been an explosion of activity around building digital libraries.
  2) ARL has established a Work Group on Networked Information Resources, which is chaired by Sharon Hogan.
  3) The AAU agenda is to move forward on building a distributed network-based library collection.

APPENDIX II

ASSOCIATION OF RESEARCH LIBRARIES

REPORT ON ASSOCIATION ACTIVITIES
MAY 1994 – OCTOBER 1994

SUMMARY

Progress on the AAU Research Libraries Project was a central feature of the Association's work over the previous six months. Activities included publication of a final report, establishment of a new AAU/ARL Coordinating Committee to promote the implementation of an AAU/ARL action agenda and receipt of a new grant from The Mellon Foundation to support the Latin America pilot project. Copyright-related actions also captured member and staff attention: a statement of principles was endorsed by members; comments were offered on the preliminary draft report of the Information Infrastructure Task Force Working Group on Intellectual Property Rights "Intellectual Property and the National Information Infrastructure"; and testimony was presented to the Working Group concerning changes needed in copyright for the electronic environment. The Executive Director worked closely with the Program Officer for Diversity and Minority Recruitment to establish a firm base for the new minority recruitment capability.

Highlights of ARL program activities since the May membership meeting include:

Fourth edition of ARL Directory of Electronic Journals published

NII — Networking and Telecommunications Issues activities reviewed

Ad Hoc Working Group on Copyright makes progress

AAU/ARL Action Agenda established

NAILLDD Project expands activities

CNI priorities outlined

Two SPEC kits on use of electronic journals published

ARL participates in Black Caucus of ALA

Statistics and measurement capability expanded

ARL extends electronic services

ARL's 1995 financial strategy recommendations

Research and development considers projects

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  - 1.1.1 ARL Firm Subscription Prices Working Group
  - 1.1.2 Working Group on Networked Resources: Acquisition, Storage, Dissemination, and Service
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- 1.3 Ad Hoc Working Group on Copyright Issues
- 1.4 AAU/ARL Action Agenda
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  - 1.4.2 Implementation Notes

2. Access and Technology (Objectives 2 and 5)

ARL Objective 2: To make access to research resources more efficient and effective.

ARL Objective 5: To assess the impact of educational technologies on scholarly communication and on the role of research libraries and assist member libraries to exploit technology in fulfillment of their mission.

- 2.1 Access and Technology
  - 2.1.1 ARL Committee on Access to Information Resources
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3. Collection and Preservation (Objectives 3 and 4)

ARL Objective 3: To support member libraries' efforts to develop and maintain research collections, both individually and in the aggregate.

ARL Objective 4: To promote and coordinate member libraries' programs to preserve their collections.

- 3.1 Collection Services
  - 3.1.1 ARL Committee on Research Collections
  - 3.1.2 ARL Committee on Preservation of Research Library Materials

4. Management and Staffing (Objectives 6 and 7)

ARL Objective 6: To identify capabilities and characteristics required for research library personnel to best serve their constituencies and to assist member libraries in the recruitment, development, and effective use of staff.

ARL Objective 7: To assist member libraries in augmenting their management capabilities.

- 4.1 Management Services
  - 4.1.1 ARL Committee on the Management of Research Library Resources
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1.1 Office of Scientific and Academic Publishing

The objective of the Office of Scientific and Academic Publishing is to maintain and improve scholars' access to information. OSAP undertakes activities to understand and influence the forces affecting the production, dissemination, and use of scholarly and scientific information. The Office seeks to promote innovative, creative, and alternative ways of sharing scholarly findings, particularly through championing newly evolving electronic techniques for recording and disseminating academic and research scholarship. The Office also maintains a continuing educational outreach to the scholarly community in order to encourage a shared "information conscience" among all participants in the scholarly publishing chain: academics, librarians, and information producers. The activities of this office build on the results of the ARL Serials Prices Project, as well as interest and research ongoing in the profession. The capability is advanced, and OSAP receives guidance through the work of the ARL Committee on Scholarly Communication.

Summary of Activities

Campus and scholarly programs and initiatives.

Presentations by OSAP director to administrators, faculty, editors, and/or librarians were made at the following institutions:

- May 23rd, Scholarly Communications Seminar, University of Minnesota, session on Intellectual Property.
- June 2/3, North American Serials Interest Group, University of BC, breakout sessions on e-publishing on the World Wide Web (MOSAIC)
- June 14, Special Libraries Association, Atlanta, GA, Who's Publishing What on the Internet?
- June 21, Digital Libraries Conference, College Station, TX, panel on DL
- August 11-25, Australian Research Universities and Academies

– University of New South Wales (staff seminars; presentation to UNSW Council; Chancellery paper; Library Advisory Committee; meeting re: AAU task forces with AA to Vice-Chancellor)

– AVCC (Australian Vice Chancellors Conference: meeting re. copyright issues in Australia and USA)

– NSW Parliament (Keynote and presentations during all-day seminar on Publishing: Present & Future)

– Monash University (Meeting with Working Party on e-journals; Lecture to Melbourne area faculty and libraries: Changing Trends in Libraries and Scholarly Communications)

– Brisbane/Queensland (State Library; Papers to Queensland-wide audience of faculty and librarians re: Changing Libraries; New Forms of Publishing)

– Sydney University of Technology (Campus and Sydney area lecture on Changes in Scholarly Communications; session with Library Policy Group)

– Canberra (Keynote address at Scholarly Communications Forum & Roundtable on Electronic Publishing — Australian academies with Australian Library & Information Association

- September 22-23, University E-publishing meeting, Columbia University
- September 29, American Astronomical Society, Preprints Symposium, Baltimore, Presentation on Copyright
- October 5, STM Library Committee, Serials Committee, and Copyright Committee at Frankfurt Book Fair
- October 14-15, American Physical Society E-Prints Meeting, Quality in publishing presentation

Research, consumer, investigative activities.

- The Press. Provided substantial support and resources for articles on changing scholarly for reporters from The Chronicle of Higher Education, Wired, Scientific American, Lingua Franca, Library Journal, and others.
- Faxon situation. In spring of 1994, the Faxon Company, largest subscription vendor for North American academic libraries, experienced some financial difficulties and instability. During a transitional period involving sales of parts of the company and reorganization of various aspects, the OSAP actively monitored the situation and issued as-needed reports to the ARL directors.

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Publishing and Key Projects

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• ARL Directory of Electronic Journals, Newsletters, and Academic Discussion Lists. The fourth edition was published at the end of May 1994 and lists some 2,400 entries, as compared to 1993's 1,400. The fourth edition also contains substantive frontmatter of articles and annotated bibliographies and, for the first time, a listing of newspapers available on the Internet. The majority of the actual research and keying was done by Lisabeth King, OSAP research assistant, with sizeable support from Dru Mogge. As of July 1994, Dru Mogge prepared an abridged version for the ARL Gopher. A number of academic sites now point at this resource, and we have developed an approved site in Hong Kong (for the Pacific region) and in the U.K. (for Europe). Beth King continues to research and maintain the database for publication in 1995, and further discussions regarding Internet version development continue.

• NewJour-L. This Internet conference was created in Summer 1993 and moderated by OSAP Director. It supplements the Directory between editions and provides a place for creators of new electronic journals to report their plans and announcements to subscribers. This list currently has over 1,600 subscribers and has reported some 140 new e-journals and lists since its inception.

• ARL/AAUP Joint Symposia: Filling the Pipeline and Paying the Piper. The fourth symposium will be held in Washington, DC, from November 5-7. At this writing, programs are mailed out and registrations are on target. Previous collaborators, the AAUP and the University of Virginia Library, joined Johns Hopkins University Press, which has offered a post-symposium excursion, "A Day At The Press," and the American Physical Society, which is contributing publicity and resources, on this event. Proceedings will again be available within three months after the meeting.

• AAU Task Forces. Efforts in two aspects:

The AAU task force on Intellectual Property Rights was a special focus through May 1994, when all the reports were endorsed by the ARL Directors. Establishing a new IP task force to plan implementation of the recommendations is currently underway. Many presentations were given about this topic to various groups of librarians, faculty, administration, and publishers. An editorial for The Chronicle of Higher Education was prepared jointly with Peter Nathan, Provost, University of Iowa, and Chair of the IP Working Group.

The ARL Executive Director assigned to the OSAP the principal coordinating responsibility for the overall AAU implementation — including working with all the groups, managing progress reports, helping to identify strategic issues to bring to the Steering Committee, helping to assure that targets and deadlines are met, and keeping everyone informed of progress. This is anticipated to be an evolutionary step in OSAP commitment to the AAU work. Relationships have been established with the Follett Implementation Group in the U.K. and with a group in Australia trying to plan an appropriate initiative there.

• Copyright. In addition to the AAU–IP work described above and presentations and discussions on copyright with a number of faculty and publishing groups, the OSAP director also worked with the AAU staff to: (1) Apply for AAU participation in the Fair Use conference and subsequent process established by the NII Copyright Working Group; and (2) Respond to the NII Working Group's Green Paper on Copyright in the NII.

Publications by the OSAP Director

"Scholarly Publications and Academic Markets; Questions Answered and Unanswered," paper commissioned for NCLIS, July 1994.

"Future of the Book; Report of a Meeting," in Bryn Mawr Classical Reviews, 94.8.4, August 1994.

Regular columns in ARL newsletter.

AAU reports: prepared and formatted them for publication. Prepared the ASCII version for the ARL Gopher.

ARL Committee Highlights:

1.1.1 The ARL Firm Subscription Prices Working Group

The Working Group is in a period of quiet while the publisher and vendor community seem to be trying hard to encourage firm prices in a timely fashion while strongly supporting the ARL initiative, as they have done in the previous year. The major vendors and publishing organizations have copied us on some of their correspondence regarding this initiative.

1.1.2 ARL Working Group on Networked Resources

The MIT libraries proposed a working group under the Scholarly Communications Committee to explore in detail the topic of Internet archiving of electronic journals and other research resources. Early in 1994 the ARL Board approved a charge and a broadly-based working group that met for the first time at the Austin meeting. Notes from the meeting have been shared, and Dru Mogge has begun a WWW resource in which various Internet sites of e-journals will be compared.

1.2 Federal Relations and Information Policy Development

The Federal Relations and Information Policy Program is designed to monitor activities resulting from legislative, regulatory, or operating practices and programs of various international and domestic government agencies and other relevant bodies on matters of concern to research libraries; prepare analysis of and response to federal information policies; influence federal action on research libraries-related issues; examine issues of importance to the future development of research libraries; and develop ARL positions on issues that reflect the needs and interests of members. This capability includes the ARL Information Policies Committee.

Summary of Activities:

NII — Networking and Telecommunications Issues. Restructuring the telecommunications infrastructure is a priority of the Clinton–Gore Administration. Congress has joined in the rush to restructure the industry. The House of Representatives passed H.R. 3636 and H.R. 3626, and sent one unified bill to the Senate. In the Senate, a different bill, S. 1822, was reported out of the Committee on Commerce, Science, and Transportation. This bill proposes broad sweeping changes to the current regulatory environment. Provisions from S. 2195, a bill that delineates public access mechanisms for non-profit communities, were pared down and incorporated in S. 1822. It is not clear that the bill will be considered by the full Senate prior to the Congressional recess. ARL joined with over 100 non-profit groups in support of provisions in S. 1822 that promote public access rights in a deregulated telecommunications environment.

ARL, with others in the library and higher education community, has focused on issues relating to ensuring affordable and predictable access to telecommunications services. Specifically, this has included developing a "suggested approaches" paper with ALA, promoting the provision of preferential rates for both interstate and intrastate services, and promoting eligibility of libraries and educational institutions at all levels for these services. ARL endorsed the testimony presented by the National Association of State Universities and Land Grant Colleges on issues relating to S. 2195 and S. 1822.

Follow-on NREN legislation passed the House and Senate. Both bills seek to spur the development of applications in digital libraries, education, government information, energy, health care, and manufacturing; support the research and training of "teachers, students, librarians ... in the use of computer networks; and initiate a competitive, merit-based program to assist states in the development of electronic libraries." Although a conference committee has been named to resolve the differences between House and Senate bills, it is not certain that the Committee will conclude their work prior to the Congressional recess.

ARL was asked to respond to the Information Infrastructure Task Force report, "Putting the Information Infrastructure to Work." The draft report includes a series of chapters on NII applications, including the NII and libraries. ARL's response focused on issues relating to digitization of research resources, federal R&D activities, and new directions for federal library support.

Copyright and Intellectual Property. Gloria Werner, University Librarian, University of California–Los Angeles, presented testimony on behalf of ARL regarding the Information Infrastructure Task Force (IITF) Working Group on Intellectual Property draft report. Other library and scholarly groups endorsed ARL's testimony. ARL is coordinating the efforts of others in the library community on these issues and has been asked to participate in the upcoming fair use conference that will be sponsored by the Working Group. Duane Webster, Prue Adler, and Mary Jackson will represent ARL. ARL responded to the (IITF) Intellectual Property Working Group draft report, and the response is available via ARL's Gopher.

ARL, with other associations in the library, publishing, and scholarly communities, expressed concerns with efforts to include provisions from the Copyright Reform Act of 1993 in congressional discussions on GATT. The provisions would entail changes to copyright policy and could have detrimental effects on the Library of Congress' collection. ARL and the other associations continue to meet with congressional staff on this issue.

Information Policy Legislation and Related Activities. ARL actively participated in information policy debates and met with congressional staff and others on proposed changes to the Paperwork Reduction Act, S. 560. With AALL and SLA, ARL presented a statement on S. 560. The bill was reported out of Committee on August 4. It is not likely that it will pass both House and Senate prior to the Congressional recess.

With AALL and SLA, ARL submitted a statement on "Dissemination of Federal Government Information and the Depository Library Program," to the Senate Committee on Rules and Administration. The statement addresses issues raised in the National Performance Review proposals, with a particular focus on the implications for access to government information and the Government Printing Office. Meetings regarding how to encourage cooperation between NTIS and GPO with staff of GPO, NTIS, and OMB are ongoing.

Phase III (Canada) of the ARL GIS Literacy Project is underway. The project seeks to educate librarians and users about GIS as well as to develop GIS capabilities in research libraries. A fifth GIS training session designed for staff of ARL libraries was conducted at the end of May. Data vendor Wessex has donated TIGER geography for all 50 states in ArcInfo format to project participants. Discussions with other GIS-related vendors concerning new donations to the ARL Literacy Project are ongoing. In cooperation with project libraries and with the University of Minnesota John M. Borchert Map

Library, in particular, ARL is creating an electronic atlas, a repository of maps portraying public information. ARL continues to participate in discussions and conferences related to the development of a national spatial data standard. Prue Adler has joined the Board of the National Center for Geographic Information and Analysis (NCGIA), an NSF sponsored consortium.

Appropriations, Postal, Indirect Costs

HEA/LSCA. The Senate restored library program funding through shifted funds between the various library programs. A conference between the House and Senate to resolve differences between the two appropriations bill is scheduled for mid-September. The shift in funding reflects new priorities including support for demonstration projects involving the digitization of research library collections and the development of related organizational tools for access to these digital resources.

Staff have participated in reauthorization of LSCA discussions, including those sponsored by NCLIS. Despite recent congressional and administration initiatives, the LSCA Task Force continues to promote a narrower approach to the reauthorization of LSCA. Digitization of research resources and human resources issues are not included in their recommendations.

NEH. Jerry Campell, University Librarian, Duke University, testified in support of the NEH FY 1995 budget request on behalf of ARL, the National Humanities Alliance, and the Commission on Preservation and Access.

GPO, Library of Congress, National Technical Information Service. ARL provided testimony in support of the FY 1995 budget request for the Government Printing Office and the Library of Congress. ARL worked with congressional staff on issues relating to both GPO and NTIS' FY 1995 appropriations request during the respective conferences.

Postal Rate. The proposed increase in the postal rate will have a severe impact on libraries. Representatives of the USPS met with groups, including ARL and ALA, that will be most affected by the proposed 73.7 percent cost increase to the fourth-class library rate. Based on input from the ARL membership, ARL responded to U.S. Postal Service proposed increase.

1.3 Ad Hoc Working Group on Copyright Issues

At the request of the ARL Board of Directors, the Ad Hoc Working Group on Copyright Issues was asked by the ARL Board to continue to coordinate ARL activities on intellectual property and copyright issues. Members of the Ad Hoc Group will serve as liaisons to their respective committees on these issues.

Based on initial discussions, the Ad Hoc Working Group identified six key proposals for action. Most of these items are focused on short-term activities, with a predominate focus on initiating educational activities. Additional strategies that will position the Association over the longer term were also discussed:

- Briefing Packages
- White Papers
- Workshop on Copyright Issues
- Legal Partnership
- Statement of Principles

In May, the ARL membership adopted "Intellectual Property: An Association of Research Libraries Statement of Principles, Affirming the Rights and Responsibilities of the Research Library Community in the Area of Copyright." These principles have since been endorsed by ALA, AALL, CAUSE, and the National Humanities Alliance; other groups are considering endorsement. The principles have also been included in responses and testimony to the IITF Working Group on Intellectual Property.

In addition, the Working Group provide background information to the membership on two documents: the AAP "Statement on Document Delivery" and AAP "Position Paper on Electronic Scanning."

SECTION 2. ACCESS AND TECHNOLOGY

2.1 Access and Technology

This capability addresses the myriad issues related to the ARL mission of enhancing access to scholarly information resources. The work of three ARL groups contributed to this capability in the previous six months: the Committee on Access to Information Resources, the Working Group on Scientific and Technical Information, and the ARL Steering Committee for the Coalition on Networked Information. In addition, this capability encompasses the relationship established among ARL, EDUCOM, and CAUSE — the HEIRAlliance, the ARL support for the AAU Task Force on a National Strategy to Manage STI, and ARL's collaboration with NACS on electronic "reserve" collections.

2.1.1 Committee on Access to Information Resources and Subcommittee on ILL and Document Delivery

Activity within the committee focuses on the committee's agenda in support of resource sharing in an electronic environment. A Subcommittee on ILL and Document Delivery maintains an active and visible program to encourage developments to improve ILL systems and operations. The program is encompassed in the North American ILL/DD (NAILDD) Project.

NAILDD Project and the DIG

In May 1993, the University of Pennsylvania provided a leave of absence for Mary E. Jackson, ILL librarian, to direct the NAILDD Project for ARL libraries. This has included orchestrating discussions with a wide variety of vendors and system providers to enlist their participation in a Developers/Implementors Group (DIG) to collaborate on implementing elements of the "ideal" ILL system.

By September 1994 over 40 vendor representatives, major players in the ILL/DD arena, have joined the project's Developers/Implementors Group (DIG), including the first non-North American organization, the British Library Document Supply Centre. The DIG facilitates the development of technologies that will meet the three priorities that surfaced in subcommittee discussions: a management system, an accounting system, and interconnectivity and linkages among systems. Steady progress has been reported in the DIG by members who announced products that take steps toward meeting the project's technical objectives.

In the last six months, the DIG work has been managed by electronic mail; in August, a status report was posted on the ARL Gopher. Promoting interconnectivity and linkages was pursued by Mary Jackson drafting a revision of Z39.63-1989, ILL Data Elements, and by OCLC providing technical expertise (Jim McDonald) to work with Mary and the DIG Standards Working Group on a draft RFC for an Internet patron request "standard." The goal continues to be to streamline the standards development process, leading to pilot projects to test a standard procedure as it is defined. Members of the ILL Subcommittee have volunteered their institutions as test-beds when the project work reaches the pilot stage. Directors of research libraries in a consortium have also expressed interest in exploring testing of the RFC Internet patron request procedure.

A meeting to showcase accomplishments of DIG members is anticipated in February 1995, just prior to the ALA Annual Midwinter Meeting in Philadelphia.

In June, Mary Jackson and subcommittee members made presentations at ALA Annual Conference including the several "Big Heads" groups — the ASCLA Multi-LINCS Interlibrary Cooperation Group, and the RASD ILL Discussion Group — to keep the library community aware of project activities and encourage their feedback.

The ARL Gopher has proven to be a very effective communication device for reporting on NAILDD project activities to a wide audience. Interest in the material has been keen.

Redesigning ILL and DD Services

Building on the experience of a "Library Change Strategy" retreat held by the Committee on Access to Information Resources, OMS designed an Institute to Redesign ILL/DD Services. The event brings together institutional teams, consisting of the library director, the head of public services, the head of access services, and the ILL librarian, to develop a change strategy for the library. Two institutes have been planned and will be hosted by the Library of Congress (October 10-12) and the University of Chicago (November 16-18). Both events were oversubscribed before the deadlines, prompting an announcement that additional redesign institutes will be planned for 1995. In addition, an adaptation of this institute for those libraries participating in the AAU Demonstration Project on Japanese STI Resources has been requested.

Widespread library and vendor interest in the changing nature of access and delivery services has underscored the value of similar forums for individuals rather than institutional teams. Therefore, an outline for such a workshop was developed and is tentatively scheduled for June 14, 1995. The date was selected to coordinate with the 4th International Inter-lending and Document Supply Conference and the Canadian Library Association Annual Conference to be held in Calgary.

Access and Delivery Services: A Strategic Direction for Research Libraries

In July, the ARL Board formally adopted a statement developed by the Access Committee that presents a consensus view about the future direction of research library access and delivery services. The need for such a statement grew from discussions in the DIG and at the committee's winter retreat that called for a shared understanding to guide vendor and library planning.

Information Access and Delivery Services: A Strategic Direction for Research Libraries describes an environment in which users may exercise choice and responsibility; and in which libraries serve as sources for comprehensive collections, centers of instruction and advice, and providers of gateway services to other libraries or information sources. The statement was posted on the ARL Gopher, distributed on a number of electronic lists, and published in the September 1994 issue of the ARL newsletter. The statement was included in a recent newsletter of MINITEX with a call from Bill De John, MINITEX's

Executive Director, to apply the statement to public libraries rather than just research libraries. The Access Statement will also be published in the November 1994 "Library to Library" column in Wilson Library Bulletin.

Performance Measures for Access & Delivery Services

The Access Committee "Library Change Strategy" retreat also confirmed that current measures for ILL and document delivery work at cross purposes with the goal of redesigning these services. In collaboration with ARL's Statistics and Measurements Committee, the Access Committee is co-sponsoring a panel at the October 1994 Membership Meeting to consider if there are new measures that may provide incentives for change. The panel presentations and membership discussion will contribute to the future agenda of each committee.

Transforming the Reserve Function

Over 60 participants representing nearly 40 institutions gathered in Durham, NC, June 2-4 to explore a series of topics that included library–college store partnerships and the changing landscape of instructional support. The workshop, Transforming the Reserve Function, was sponsored by ARL, the National Association of College Stores (NACS), and Duke University. A number of ARL institutions were represented by staff from both the library and the college store. To meet the interest of those unable to participate in the workshop, an Electronic Reserves Forum was conducted July 27-29 in Denver that attracted over 160 individuals. Additional meetings on the topic are planned for early spring; a publication summarizing the papers and discussion is planned.

Related Activities

Other activities being pursued under the Access and Technology capability include:

- collaboration with Carrol Lunau, National Library of Canada, on a briefing package on cross-border ILL,
- securing information on IFLA's approach to enhanced international ILL, with Una Gourlay, Rice University,
- conducting a SPEC survey on document delivery, with Karen Croneis, Washington University in St. Louis,
- exploration of the feasibility of a North American-wide agreement with a courier service for expedited delivery services for library materials,
- an examination of the cost and other measures of ILL/document delivery, and development of a project proposal for a new study,
- contributions to ARL responses to the NII Working Group on Intellectual Property report and meetings, and
- an analysis of recent publisher statements on copyright, document delivery, and scanning technology.

The University of Pennsylvania extended Mary Jackson's original eight-month leave through 1994. In 1993, funding was provided by Penn, the Council on Library Resources, and the H.W. Wilson Foundation. Funding for 1994 activities is through cost-recovery activities and contributions from members of the DIG; additional grant funds are sought.

2.1.2 Working Group on Scientific and Technical Information

The Working Group was formed to follow up the report of the 1991 ARL Task Force on a National Plan for Science and Technology Information Needs. The Working Group monitors STI developments and functions as an advisor to the Board for shaping ARL activities in this area. The Working Group was the primary link for ARL Membership to monitor and advise on input for the AAU Task Force on Managing Scientific and Technological Information. The May meeting of the group reviewed the final AAU STI Task Force report and provided advice on development of a follow-up demonstration project for Japanese STI Resources. The Working Group also received updates from CISTI and the Linda Hall Library.

2.2 Coalition for Networked Information

2.2.1 ARL Steering Committee for the Coalition for Networked Information

As part of the governance structure of the Coalition for Networked Information, each of the three founding organizations (ARL, CAUSE, and EDUCOM) has three seats on the CNI Steering Committee. ARL representatives to the committee have been given staggered terms to achieve eventual consistency with other ARL Committee assignments. The members of the committee meet with the ARL Board to review communication and advisory processes between ARL and CNI.

2.2.2 Coalition Priorities

2.2.2.1 Intellectual Property and the Economics of Networked Information

- Disseminate the READI Project guide to licences for networked information resources.

- Prepare a white paper on life-cycle thinking and modeling in the investigation and analysis of the scholarly and scientific communication process, and identify and estimate the institutional investments (network infrastructure, citation databases, order and fulfillment process, user support, and the like) needed to enable document delivery and other networked information services.

2.2.2.2 Network and Networked Information Navigation and Navigators

- Produce a white paper on trends and issues in network navigation.

- Coordinate the development and implementation of a multimedia training resource on navigational tools and issues for service administrators.

2.2.2.3 Institutional Networked Information Readiness, Policies, and Strategies

- Update the modules of information that can be used when formulating and addressing institutional issues and make them available on the Coalition Internet server.

- Hold a workshop on building collaborative networked information projects within institutions. In light of that experience, decide whether to hold additional ones and, if so, when.

- Update the information policy compilation.

- Promote and assist the projects identified in the joint AAUP / CNI "University Presses in the Networked Information Environment" initiative.

- Assist AAU and ARL with the implementation of the "science and technology" recommendations of the AAU Research Libraries Project.

2.2.2.4 Teaching and Learning, and the Arts, Humanities, and Social Sciences

- Continue to work with the Getty Art History Information Program and the American Council on Learned Societies to promote the National Initiative for the Arts and Humanities on the Information Highways.

- Host a session on exemplary uses of networked information resources and services in support of teaching and learning at the EDUCOM 1994 conference; continue to build the database of projects collected by means of this project.

- Hold a conference on exemplary, collaborative efforts to use the Internet in teaching and learning, co-sponsored by EDUCOM, AAHE, and ACRL.

2.2.2.5 General Capabilities

- Hold the Fall 1994 Task Force meeting in conjunction with the CAUSE Annual Meeting.

- Hold the Spring 1995 Task Force meeting in conjunction with the Nation NET '95 Conference.

- Hold the Fall 1994 and Spring 1995 regional conferences with CAUSE.

- Contribute to ARL, CAUSE, EDUCOM, and other publications, and speak on the Coalition and on networked information resources and services as often as it is practical and productive to do so.

- Increase the capabilities of the Coalition's Internet server in order to make additional resources available and to make non-textual materials available, and improve the security of the server's resources and services.

2.3 HEIRAlliance

The Higher Education Information Resources Alliance (HEIRAlliance)

In May 1991, the ARL Board received an invitation from CAUSE and EDUCOM to form an alliance to identify cooperative ventures dealing with information resources management. The HEIRAlliance was approved in concept by all three boards as a device to allow further project-based cooperation. The chief elected officers and the chief executive officers of the three organizations meet three times a year to exchange views and to plan joint actions.

The product of this alliance is a series of four-page briefing papers called What Presidents Need to Know. The reports are targeted at chief executives and academic officers in the 3,000 academic institutions in the U.S. and Canada and are the result of work by teams that consist of library directors, heads of information technology, and presidents.

Since the Spring 1994 ARL meeting, a fourth briefing paper in the series, What Presidents Need to Know, was prepared and distributed. HEIRAlliance Executive Strategies Report #4 was What Presidents Need to Know ... about the Payoff on the Information Technology Investment (May 1994). Report #5, expected in the fall, will be a summary of the AAU Research Libraries Project Task Force reports. The series of reports is available through the CAUSE office in Boulder, Colorado (303/939-0313).

SECTION 3. COLLECTION AND PRESERVATION

3.1 Collection Services

This capability addresses the broad issues facing research libraries in the areas of collection management and preservation. The work of two ARL committees is covered by this capability: Research Collections and Preservation of Research Library Materials.

ARL's collection development efforts are directed toward the program objective of supporting member libraries efforts to develop and maintain research collections, both individually and in the aggregate. Strategies to accomplish the objective include promotion of needed government and foundation support for collections of national importance in the United States and Canada; efforts toward improving the structures and processes needed for effective cooperative collection development programs, including the North American Collections Inventory Project (NCIP); provision of collection management consulting through the Collection Analysis Program; and development and operation of collection management training programs.

ARL's preservation efforts support the strategic program objective of promoting and coordinating member libraries programs to preserve their collections. Strategies in pursuit of this objective include advocacy for strengthening and encouraging broad-based participation in national preservation efforts in the U.S. and Canada; support for development of preservation programs within member libraries; support for effective bibliographic control of preservation-related processes; encouragement for development of preservation information resources; and monitoring technological developments that may have an impact on preservation goals.

Jutta Reed-Scott, ARL Senior Program Officer for Preservation and Collections Services, worked with staff at the University Library at Case Western Reserve University (CWRU) on a comprehensive analysis of the collections during the spring of 1994.

3.1.1 ARL Committee on Research Collections

The Committee is providing oversight for the ARL Foreign Acquisitions Project, funded by The Andrew W. Mellon Foundation. The Committee approved the work plans for the fourth phase of the project and reviewed project progress in May. Central to the discussions was the consideration of the proposed distributed and networked program for the collection and distribution of foreign materials. The Committee endorsed the final report of the AAU Task Force on Acquisition and Distribution of Foreign Language and Area Studies Materials that was issued in April. Key to the implementation of the Task Force recommendations are the three demonstration projects, which target German social science materials, Latin American resources, and Japanese science and technology information.

The Committee will consider at its October meeting a strategic plan for moving forward with the implementation of a "network-based, distributed program for development of foreign acquisitions for U.S. and Canadian research libraries." It is authored by a subcommittee consisting of Joe Hewitt, Don Riggs, and Don Simpson. The subcommittee was charged to chart the directions of a collaborative program in foreign acquisitions beyond the initial demonstration projects. The subcommittee focused on how best to guide the transition to a larger program and suggest actions the ARL community can take to achieve improved access to and delivery of international research resources. As envisioned in this strategic plan, the three demonstration projects will serve as the start-up phase. They will provide experience in planning for the medium-term phase that will focus on enhancing the distributed North American collection of global resources. The long-term goal would be to move toward a worldwide effort. The strategic plan will be highlighted at the Committee's program at the October Membership Meeting.

Discussions at recent Committee meetings also highlighted concern about the implications of electronic information resources and the need to develop innovative approaches and structures aimed at facilitating electronic resource sharing. The Committee will further explore the implications of electronic information in developing research collections. The Committee also advised on the ongoing operation of the North American Collections Inventory Project (NCIP) and discussed collection development issues of general interest to ARL.

3.1.2 Committee on Preservation of Research Library Materials

The Committee pursued a number of initiatives to address preservation problems in research libraries. At its May meeting, the Committee reviewed the final report of the Preservation Planning Task Force. The Task Force was established at the recommendation of the participants at the May 1992 Preservation Planning Conference co-sponsored by the University

of Chicago Library and the Association of Research Libraries. It was asked to further clarify the preservation needs highlighted during the conference discussions and to develop strategies to move the preservation agenda forward.

Convened under the aegis of the Committee on Preservation of Research Library Materials, the Task Force focused on shaping the ARL preservation agenda. To identify an ARL action plan, the first step was drafting a "white paper" that describes national, regional, and local preservation activities already under way and articulates the preservation needs of ARL libraries within the context of national programs. The Task Force completed its draft report in April. Based on the review by the Committee at its May meeting, the report was revised. It will be distributed to ARL directors after the October meeting.

The Task Force report provides the backdrop for the Committee deliberations on charting ARL's preservation agenda for the next five years. The Committee will propose an ARL action plan for preservation.

A corollary effort is consideration of issues in the utilization of digital technology for preserving retrospective scholarly resources. The Committee's program at the October Membership Meeting will focus on electronic technology as a preservation strategy.

SECTION 4. MANAGEMENT AND STAFFING

4.1 Management Services

The ARL strategic objectives on management and on staffing are addressed within this capability by the Committee on Management of Research Library Resources, the Committee on Statistics and Measurement, and the Committee on Minority Recruitment and Retention. This capability also encompasses the statistics and measurement program and four OMS programs: the Organizational Development Program, the Information Services Program, the Training and Staff Development Program, and the Diversity Program. Programmatic oversight of the OMS is provided by the OMS Advisory Committee.

4.1.1 ARL Committee on the Management of Research Library Resources

The Management Committee continues to focus attention to three sets of issues: human resource development, organizational effectiveness, and the changing role of the research librarian on campus. At the May meeting the committee divided its time into three discussions: benchmarking as a performance assessment tool, library education, and total quality management. The first portion of the meeting was held with the Statistics Committee. It was agreed that performance measures that have internal utility and external comparability should be the top priority. The Management Committee will continue to provide advice to the Statistics Committee on library processes most in need of performance measures.

The Committee outlined the elements of a library education policy. Merrily Taylor offered to draft a statement, which was reviewed by members during the intervening six months. The final hour of the meeting was devoted to total quality management. Discussion included suggestions for offering more training and information on TQM activities in ARL libraries.

4.1.2 Advisory Committee for the Office of Management Services

This Committee, established by Board action in 1991, provides fiscal and programmatic oversight for the OMS. The Chair of the ARL Committee on Management of Research Library Resources serves as the Chair of the Advisory Committee. The Committee monitors the development and progress of the OMS budget. Discussion at the October membership meeting centered on ways in which OMS could help ARL libraries better position themselves within the university and assist libraries in the culture change activities.

4.2 Office of Management Services

The Office of Management Services (OMS) was established in 1970 to help research and academic libraries develop better ways of managing their human and material resources and to work with librarians in determining the best way to meet the needs of their users. To achieve these ends, OMS has operates four programs: the OMS Organizational Development Program, the OMS Training and Staff Development Program, the OMS Information Services Program, and the OMS Diversity Program.

4.2.1 OMS Organizational Development Program

The Organizational Development Program includes activities related to the conduct of institutional studies and consultations. To assist libraries in their efforts to make the transition from an archival role to that of an information gateway during this period of limited resources, the OMS Organizational Development Program provides a wide range of consulting services, incorporating new research on service delivery and marketing as well as on organizational effectiveness. Using an assisted self-study approach, the OMS Organizational Development Program provides academic and research libraries with programs to systematically study their internal operations and develop workable plans for improvement in such areas as

public and technical services, planning, and organizational review and design. The OMS provides on-site and telephone consultation, staff training, manuals, and other materials to aid participants in gathering information and in situation analysis.

Three new programs receiving attention are resource sharing, staff development, and continuous improvement. More and more members are also seeking assistance in rethinking their organization structure. A popular approach to this issue appears to be a modified self-study that allows for flexibility in the design and implementation of a project.

Summary of Activities

During this period, a wide range of projects were undertaken:

Organizational Design Projects: University of California–Irvine; University of Utah; University of Minnesota; University of Missouri, Columbia

Strategic Planning and Planning Retreats: Harvard University, Fine Arts Library; MIT

Board and Senior Management Retreats: Harvard College Library; University of Tennessee, Knoxville; SOLINET

Technical Services Review Projects: University of Oregon

Discussion Facilitations: Digital Library Development: Cornell University; Mission/Vision/Values: North Carolina State University

4.2.2 OMS Information Services Program

The OMS Information Services Program gathers, analyzes, and distributes information on contemporary management techniques, conducts surveys and analytical reviews, and answers inquiries on library issues and trends. The overall goals of the program are identifying expertise and encouraging its exchange; promoting experimentation and innovation; and improving performance and facilitating the introduction of change. This is accomplished through an active publication and service program whose principal components are the Systems and Procedures Exchange Center (SPEC), the OMS Occasional Paper Series, the Quick-SPEC survey services, and the OMS Conferences Program.

Summary of Activities

Quick-SPEC Surveys

There was a notable decrease in Quick-SPEC survey activity in 1993, due in large part to the use of the ARL Directors' Discussion List as a convenient mode of gathering information from colleagues. One Quick-SPEC survey was conducted for ARL staff: Cutbacks in Library Materials Purchasing, 1993/94 (conducted annually since 1990 for ARL OSAP); and one Quick-SPEC survey was conducted for the University of Nebraska–Lincoln on incentive pay programs.

OMS Publications

The OMS Information Services Program maintains an active publications program whose principal components are the Systems and Procedures Exchange Center (SPEC) and the OMS Occasional Paper Series. Through the OMS Collaborative Research Writing Program, librarians work with OMS staff in joint research and writing projects, which are then published by the OMS Information Services Program. Through the Collaborative Research Writing Program, librarians work with OMS staff in joint research and writing projects, which are then published by OMS. Participants and staff work together in survey design, writing, and editing and in seeking management perspectives on current academic concerns.

The Systems and Procedures Exchange Program (SPEC), 1994. SPEC kits organize and collect selected library documents concerning a specific area of library management. Kits are designed to illustrate alternatives and innovations used in dealing with particular issues. Documents describing both the administrative and operational aspects of a concern are included. While this program was established to exchange useful information for strengthening library operations and programs among ARL members, a number of academic, public, and special libraries are among the more than 470 SPEC subscribers. More than 7,000 SPEC Kits are distributed annually.

The following SPEC Kits were produced during this period:

2001: A Space Reality – [illegible]gies for Obtaining Funding for New Library Space, compiled by Paula Kauffman and Aubrey Mitchell, University of Tennessee, Knoxville

Electronic Journals in ARL Libraries: Policies and Procedures, compiled by Laverna Saunders and Elizabeth Parang, University of Nevada, Reno

Electronic Journals in ARL Libraries: Issues and Trends, compiled by Laverna Saunders and Elizabeth Parang, University of Nevada, Reno

Reference Service Policies, compiled by Anna DeMiller, Colorado State University

Topics currently scheduled as SPEC surveys kits in 1994 are: Library Photocopy Operations; Library Signage; Organization of Collection Development; User Surveys; Non-M.L.S. Professionals; Quality Improvement Programs; and Document Delivery Programs.

Topics scheduled as SPEC surveys and kits in 1995 are: Strategic Planning and Organization of the Systems Office.

Upcoming OMS Occasional Papers. OMS Occasional papers present in-depth investigation and analysis of issues covered in SPEC kits. The papers cover current practices and propose alternative models and systems in specific management areas. In conducting research, authors focus on locating libraries in a variety of situations that have successfully dealt with issues. The most recent publication from this series is Resource Strategies in the 90s: Trends in ARL University Libraries, by Annette Melville, Independent Consultant, published in March 1994.

The following titles are scheduled for publication in 1994 and 1995: Information Desks in ARL Libraries, written by Cliff Haka and Denise Forro, Michigan State University, and Lori Goetsch, University of Tennessee; Video Collections and Multimedia in ARL Libraries, written by Kristine Brancolini, Indiana University, and Rick Provine, University of Virginia; Student Technology Fees at ARL Institutions, written by Elizabeth C. Baker, Indiana University.

New from OMS Publications. Under a special arrangement, OMS began distributing Collection Conservation Treatment: A Resource Manual for Program Development and Conservation Technician Training, edited and compiled by Maralyn Jones, Assistant Head, Conservation Department, University of California, Berkeley. It is a comprehensive collection of documents on conservation treatments and conservation program management compiled by a group of conservators and preservation administrators attending "Training the Trainers: A Conference on Training in Collection Conservation," held in 1992 at the University of California, Berkeley. This publication proved so popular that a second printing was run in August 1994.

OMS Conferences. The 1st International Conference on TQM and Academic Libraries was held April 20-22, 1994, in Washington, DC. Co-sponsored by Wayne State University Libraries, the conference focused on early quality improvement efforts in academic libraries. Sessions addressed using the TQM management and planning tools, benchmarking, initiating and implementing a TQM program, building a continuous improvement climate, and facilitation skills for teams. Proceeding from the conference will be available in late 1994.

4.2.3 OMS Training and Staff Development Program

The Training and Staff Development Program is designed to help academic and research libraries find better ways of developing their human resources. In 1993 more than 700 library staff participated in OMS Training and Staff Development Programs. The largest increases in this program continue to be in the area of sponsored institutes and workshops. With reduced funding available for training, libraries are finding it more cost-effective to bring OMS to their site and market the program locally. The newest offerings from this program are the Facilitation Skills Workshop and the Women in Library Leadership program.

Summary of Activities

Training events conducted during this period:

Public Institutes and Workshops

Library Management Skills Institute I, Nashville, TN, October 11-14, 1994

Implementing Continuous Improvement Programs, Boston, MA, October 25-28, 1994

Women in Library Leadership, Washington, DC, May 1-4, 1994, 18 participants

Facilitation Skills Workshop, Tucson, AZ, September 28-30

Human Resources Institute, Washington, DC, October 12-14, 1994

Sponsored Institutes

Library Management Skills Institute I:

Library of Congress, Soros Fellows, October 17-21, 1994, 12 participants; Columbia University, May 24-27, 1994, 20 participants; University of Virginia and James Madison University, September 18-21, 1994, 24 participants

Library Management Skills Update I, Tulane University, May 25-26, 1994, 16 participants

Special Focus Workshops

Teambuilding Workshop, MIT, June 1994

4.2.4 OMS Diversity Program

The OMS Diversity Program assists ARL libraries in addressing a multitude of diversity-related issues. Its primary concern is the development of workplace climates in ARL libraries that welcome, develop, foster, and support diversity. The program seeks to develop awareness of human differences that leads to the value of and respect for these differences. The program focuses on issues surrounding work relationships in libraries, while considering the impact of diversity on library services, interactions with library users, and the development of collections.

The Program Officer for Diversity and Minority Recruitment provides staff development seminars, presentations, and on-site, e-mail and telephone consultation; facilitates staff discussions; conducts research via reviews of the literature and site visits to institutions; prepares articles and publications to share the findings from the program; seeks to identify strategies for adaptation by libraries and library schools; identifies issues and strategies relating to diversity and promotes them within ARL as well as to other national library-affiliated groups; and fosters partnerships on behalf of ARL with natural allies in the profession. The major responsibility of the program is to generate interest and a focus on diversity within the library community, and to support the information needs of ARL libraries in particular.

Summary of Activities

Partnerships Program

Invitations were sent to a selected group of libraries, library schools, associations, consortia, and state libraries, extending an offer to join ARL in a two-year partnership program called "Opportunities for Success" to identify, explore, and focus on diversity and/or minority recruitment issues. Approximately 25 institutions indicated their willingness to participate as self-supporting partners. Partners were given the option of beginning their collaborative efforts with ARL in June 1994, September 1994, or January 1995. Several on-site consultations were held with partners to define the two-year relationship and to identify specific activities to pursue. A press release on this program will be forthcoming later this fall.

Consulting

Several ARL libraries have initiated a schedule of regular visits from the Diversity Consultant that consist of presentations, meetings, and discussions held at all levels of the organization, as well as with different organizational focuses. The goal of these visits is to integrate diversity into the day-to-day work and objectives of the library. Regular interaction with the Diversity Consultant not only assists in keeping diversity issues moving forward, but also energizes the staff in pursuing their identified objectives. This approach of regular, ongoing contact will serve as the model Partnerships Program. ARL libraries engaged with the Diversity Program in this way include: Library of Congress–Collections Services, Pennsylvania State University, and the University of Missouri, Columbia.

Training

In 1994 the public diversity seminars were expanded from one day to two days, and the increased contact time has been well received. Seminars were offered in May and August, and a third will be offered in November. The seminars are most effective when the number of participants is limited to ten. This size group provides each participant with an opportunity to discuss their individual challenges in responding to diversity or minority recruitment and retention issues, and enables the Diversity Consultant to offer individual assistance.

Public seminars on services, programs, and collections have not generated attendance comparable to other public seminars. However, the content of that seminar is often requested for on-site presentations and consultations. Input from past participants is being used to revamp the seminar description to assist Heads of Public Services and/or Collection Development to better relate to the content and the value of the seminar.

The public diversity seminars will be held at the ARL offices in Washington, DC, beginning this fall. This will enable participant access to resource materials collected over the past four years that are housed at the ARL offices.

The seminars offered in conjunction with the ALA conference continue to be popular. Although only one day in length, combining attendance to ALA with a Diversity Seminar is attractive to many libraries.

Fees

A new fee structure was implemented for the OMS Diversity Program. Services will be offered at the same fee as other OMS programs.

Marketing

ARL and OMS staff continue to explore methods for marketing the OMS Diversity Seminars to ARL personnel to enable them to better interpret the relevance of the seminars to their libraries and encourage their participation.

Human Resource Professionals

Particular attention is being paid to the role of the human resource and staff development officers in advancing diversity agendas. It has been determined that this group, along with library administration, play the most significant role in advancing diversity within the library and in providing a framework for managers and supervisors to implement and address diversity agendas within their individual departments and divisions. Interviews have been held at both the university and library level to prepare materials on how best to take advantage of this resource. The Diversity Program already offers a seminar on the role of administrators and developing the administrative agenda. Plans are underway to offer a seminar for human resource and staff development professionals in 1995.

Resource Team

In late 1994, a Resource Team will be established for the OMS Diversity Program. This group will be made up of individuals from various geographic regions who have expertise, knowledge, and experience with diversity agendas for libraries. The Resource Team will be convened for the first time in Philadelphia in February 1995. The Team's primary role will be to review the long- and short-term goals of the Diversity Program. It is expected that these individuals will assist in the development and expansion of the Program to enhance not only the quality of services, but also to ensure that OMS is aware and informed of the day-to-day challenges faced by libraries.

Consultants

Discussions continue on the best approach to developing a cadre of consultants to assist in facilitating diversity activities and programs for ARL libraries. A primary goal is to develop personnel within ARL institutions. The group will be multicultural, geographically dispersed, and made up of individuals who have expressed an interest and a willingness to participate in a one-year training program. It is expected that some of these individuals may be asked to assist OMS in providing diversity services to the broader library community.

National Conference of BCALA

In collaboration with the efforts of the Minority Recruitment and Retention Capability, OMS participated in the National Conference for the Black Caucus of ALA held in August at Milwaukee. OMS sponsored a session "The role of the multicultural and/or diversity librarians in ARL libraries" that featured personnel from the University of Michigan, University of Minnesota, and University of Wisconsin Libraries. In addition, the Diversity Consultant co-presented a session sponsored by ALA/LAMA's Cultural Diversity Committee with Hiram Davis, Deputy Librarian of the Library of Congress. The program discussed the implementation of diversity programs in ARL libraries.

On-site Consultations, Presentations, Facilitated Discussions, and/or Seminars

Michigan Library Association, MI
Pennsylvania Regional Library Consortia, PA
Pennsylvania State University, PA
Queens Borough Public Library, NY
Kent State University Library, OH
Kent State University School of Library and Information Science, OH
Cleveland Area Metropolitan Library System, OH
Library of Congress, DC
University of Michigan, School of Information and Library Studies, MI
Wayne State University, Library Science Program, MI
Detroit Public Library, MI
University of Michigan Library, MI
Michigan State University Library, MI
American Library Association, IL
Pennsylvania State Library, PA
University of Missouri–Columbia Library, MO
University of Missouri–Columbia School of Library and Information Science, MO
Daniel Boone Regional Library, MO
University of Minnesota, MN
Minnesota Library Assoc., MN
College of St. Catherine's, MN
Long Island University, Palmer School of Library and Information Science, NY
University of Nebraska, NB
New York Library Assoc., NY
Virginia Library Assoc., VA
American Assoc. of School Librarians, IN

Sponsored Seminars

Assessment and Design of Library Services for a Multicultural Population, DC, May 1994

Developing a Library Diversity Program: The Agenda and Role of Administration, DC, August 1994

4.2.5 OMS Operations

OMS Operations encompasses overall coordination and management of the Office of Management Services, program planning, financial planning and strategy, fiscal control, and secretarial support and office operations.

Summary of Activities

OMS began recruitment for a Program Officer for Information Services and for a Program Officer for Training. The publications fulfillment program was reorganized and responsibility was moved to within the ARL Executive Office. Publications programs now exist in several ARL capabilities, such as Preservation and the Office of Scientific and Academic Publishing; this decision supports other efforts to centralize support activities. New software to support the training and consulting programs is currently under development.

4.3 Minority Recruitment and Retention

The Minority Recruitment and Retention Program is charged with increasing the number of minorities recruited and retained by ARL libraries. To this end, program staff work closely with a broad range of libraries, graduate library education programs, and other library associations to promote minority student awareness of opportunities presented by research library careers and to support their academic success.

Summary of Activities

The first ten months of this new capability have been devoted to planning and preparation. February through April included numerous meetings between the Program Officer and others at ARL to explore the opportunities and activities appropriate for this capability. Although everything is desirable, there was a compelling need to set priorities; this capability is funded at a 50 percent level for 1994. The grant award from the Delmas Foundation enabled the capability to pursue its agenda with vigor nonetheless. During this period, the Program Officer was also prepared for assuming the administrative responsibilities of this capability.

An extensive review of all recommendations, ideas, and suggestions identified by previous and current ARL committees/task forces were reviewed. Categories of activities were identified, and strategies were related to the appropriate category. The challenge is to address the immediate desire for more minorities in pools for current vacant positions and focus on long term goals at the same time. A report on the capability's five-year plan will be discussed at the fall ARL meeting.

A primary activity supported by the Delmas Grant was ARL's presence at the National Conference for the Black Caucus of ALA held in Milwaukee in August. Approximately 40 ARL library personnel participated as presenters or panelists at the conference. ARL had an exhibit booth that featured the new minority recruitment and retention capability. Special efforts were made to identify and greet all ARL employees attending the conference, including a reception held in the ARL hotel suite. Follow-up letters will be sent to ARL personnel who presented at the conference, acknowledging their contributions. REFORMA (the association for Spanish-speaking librarians) will be sponsoring a similar conference, and ARL will seek to participate there as well.

Discussions have been held with Martha Kyrillidou, Program Officer for Statistics and Measurement, exploring the statistical analysis and research agendas suggested by previous ARL committees. The goal is to better inform the membership about the demographics of the U.S. as well as ARL libraries, library schools, and universities. It is expected that this will enable better targeting of limited resources for the greatest success.

The history of ARL's efforts and progress in the area of diversity and minority recruitment was featured in the ARL newsletter's September issue (*ARL* 176, pp. 1-2). Copies of that newsletter will be shared with minority library leaders who may not be aware of ARL's initiatives.

At the suggestion of the Minority Recruitment and Retention Committee, efforts are underway to develop packets of information and resource materials to be periodically released to ARL library directors and human resources officers. These packets will feature detailed descriptions of successful strategies and offer suggestions and information to libraries seeking to increase minority representation on their staffs.

With the Delmas Grant funds, several site visits to ARL libraries, library and information science programs, and historically black colleges and universities will be made in the next several months. Institutions are currently being contacted to host a site visit, and a schedule of these site visits will be released at a later date.

On-site, detailed discussions were held with two library schools involved in an extensive revamping of the mission, curriculum, and focus of library education. Both University of Michigan and University of Missouri–Columbia Library and Information Science Programs invited the Program Officer for Diversity and Minority Recruitment to engage in dialogue about the incorporation of minority recruitment and retention strategies within their new directions.

Collaborative activities continue with ALA's Office of Library Personnel Resources. The OLPR Office provided funds to assist in development of resources for ALA to provide for the profession to foster and facilitate minority recruitment

activities. Progress has been made in collecting data on the HEA Title IIB fellowships, and a report is being prepared. A resource kit on minority recruitment strategies is near completion. A draft of a brochure to be distributed by ALA for recruiting minorities to the profession has been sent to a design company for preparation.

One of the more popular discussions held on-site with ARL library staffs is a discussion about hiring practices. In these sessions, the Program Officer for Diversity and Minority Recruitment describes how biases, prejudices, and assumptions may play a part in creating barriers for the inclusion of minorities in applicant pools and/or the selection of minority candidates for interviews. These frank discussions enable personnel to learn more about how to be inclusive and open to diversity on the staff, and also enables staff to explore possible misperceptions regarding minority applicants. These discussions include all elements of consideration from writing job descriptions to advertising positions to reviewing the applicant pool to selection to interviewing.

4.3.1 ARL Committee on Minority Recruitment and Retention

The Committee on Minority Recruitment and Retention is charged to provide oversight for the shaping and review of the minority recruitment and retention capability, and to provide leadership in the development of programming on this topic. Some of the responsibilities in the charge include: monitoring developments with a potential impact on minority recruitment and retention, contributing to national planning efforts, and encouraging ARL libraries to recognize their responsibility in this arena.

The committee met for the first time in May. The ARL Executive Director met briefly with the committee to discuss the history of the capability and to explore the role of the committee in shaping the long- and short-term goals of the capability. In reviewing their drafted charge, it was suggested that the charge be enhanced to place as much emphasis on retention as it does on recruitment issues. The Committee recommended that ARL include a statement on future ARL meeting evaluations that would ask the membership to respond to the representation of diversity within the meeting programs (content, participants, etc.). It was determined that the October meeting would include a discussion with the incoming president of ALISE, the library educators association, to discuss future collaborative activities between ARL and ALISE as relates to minority recruitment and retention. The committee made several recommendations to the Program Officer for specific activities to be furthered explored that will assist ARL libraries in their local efforts to increase minority representation on their staffs.

4.4 Statistics and Measurement Program

The Program on Statistics and Measurement describes and measures the performance of research libraries and their contribution to teaching, research, scholarship, and community service. The work of the ARL Statistics and Measurement Committee is covered by this program. The ARL Board of Directors added an objective to the ARL Strategic Program Objectives at its July 1994 meeting to emphasize the increased importance of this area.

Strategies to accomplish this objective include:

- Collecting, analyzing, and publishing quantifiable information about library collections, personnel, and expenditures, as well as expenditures and indicators of the nature of a research institution.
- Developing new measures to describe and measure traditional and networked information resources and services.
- Developing mechanisms to assess the relationship between campus information resources and high quality research, the teaching environment, and, in general, the production of scholars and researchers.
- Providing customized, confidential analysis of data for peer comparisons.
- Developing a leadership role in the testing and application of academic research library statistics for North American institutions of higher education.
- Collaborating with other national and international library statistics programs and accreditation agencies.

Summary of Activities

Development of an expanded capability. As it expands, the program tests new variables using the supplementary survey, but, it is apparent, there must be other means used to collect information on new service areas. Specialized surveys may be developed for different services — for example, a facilities survey or an interlibrary loan/document delivery survey. Also, there is interest in developing a study that examines deployment of staff, with an emphasis on identifying tasks and activities performed.

The Andrew W. Mellon Foundation has awarded $19,000 to the Statistics and Measurement Program to develop an in-house data analysis and statistical consulting capability. The award was used to purchase and lease statistical software (SPSS and SAS) and buy hardware (a PC and printer). ARL must be able to provide customized data analysis and prepare reports and custom-made charts and graphs to members.

Kaylyn Hipps started working as the new part-time research assistant for the Program on Statistics and Measurement. Ms. Hipps is a graduate student in library/information science at Catholic University of America. She has a B.A. in Economics and experience in working for an association prior to coming to ARL.

ARL Statistics. Electronic Publication of ARL Statistics. The first electronic publication of the ARL statistics on the World Wide Web (WWW) was prepared by Paul Bergen, John Price-Wilkin, and Kendon Stubbs at the University of Virginia's Alderman Library. Featuring reports on 48 data categories for the 108 university and 11 non-university ARL members, the electronic publication is accompanied by fully documented descriptions of the 1992-93 data files. It also provides selected graphs and maps. Future plans include the development of an interface for interactive data analysis that will permit users to calculate their own benchmarks and generate reports for their institutions and peer groups. Sorting and calculation of ratios are available now so long as users have access to a Mosaic version that supports the "forms" feature. External funding is being sought to support this project.

Annual surveys. The electronic submission of data for the three annual statistical surveys went out using data entry templates created with QPL (Questionnaire Programming Language), a program developed by the General Accounting Office.

The 1993-94 ARL Annual Salary Survey adds questions from the 1989-90 version. These additional variables will be analyzed by Stanley Wilder of Louisiana State University in a study that examines the demographic characteristics of library professionals.

The ARL Statistics 1993-94 survey is the same as that in 1992-93. The Supplementary Statistics for 1993-94 includes ten new questions: four on interlibrary loan, asking libraries to distinguish between returnable and nonreturnable materials borrowed and loaned; four additional new questions on remote storage facilities; and two on main library facilities. The interlibrary loan questions have been proposed for inclusion in the 1996 IPEDS Library survey.

Communication with ARL survey contact persons. The Program on Statistics and Measurement has established three electronic groups to communicate with the persons responsible for completing the three ARL annual surveys: statistics, salary, and preservation. The lists are used to improve communication between ARL and member libraries' staff involved in the compilation of annual statistics.

Coordinating the Statistics and Measurement Program with related ARL programs

Access to information resources. Data from the ARL/RLG Cost Study, SPEC survey on Interlibrary Loan, and OCLC Interlibrary Loan statistics will be coded and analyzed for 48 libraries to explore relations among the variables. A methodology to expand the ARL/RLG study to a comprehensive performance evaluation of interlibrary loan/document delivery operations is under development, while the program seeks external funding to support research in that area.

Office of Management Services. Work continued on furthering the benchmarking agenda for ARL. Nancy Kaplan, who worked as an OMS consultant on the pilot ILL Benchmarking Study, will introduce and discuss the benchmarking methodology and its usefulness to the members in the October meeting. User survey and focus group methodologies have been examined attempting to develop a battery of user surveys for local use in ARL libraries.

Minority recruitment and retention. Ways to provide a more detailed description and analysis of minority staff in ARL libraries by examining data from the ARL Salary Survey are under discussion.

Preservation in Research Libraries. The annual preservation survey was conducted.

Collaborating with national/international library statistics programs and projects

IPEDS. The Program on Statistics and Measurement participated in the ALA IPEDS Advisory Committee during the ALA Conference in Miami in July. Martha Kyrillidou also attended the NCES data conference and took part in the adjudication process for the IPEDS ED TABS 1992 for Library Statistics. Participation in the NCES activities aims at making data elements more comparable among the different national data collection efforts and making the national data set on academic library statistics available on a more timely and regular basis. ARL is concerned with the delay in the production and availability of all academic library statistics. The need for timely information about academic libraries is highlighted by the declining materials acquisitions and budgets and the large increases in interlibrary loan activities.

ALA Office for Research and Statistics. Coordinating efforts are underway to clarify questions about definitions and measurement issues related to electronic serials, mixed media, government documents, and other holdings.

ALA/ALCTS/CMDS Quantitative Measures for Collection Management Committee. The ARL Program Officer on Statistics and Measurement was appointed consultant to this committee.

Journal of Blacks in Higher Education. Data dissemination was coordinated for selected ARL libraries that signed the salary survey release forms to disclose minority data information to Richard Benjamin, Senior Editor of BIHE.

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Articles, Reports and Tables:

An article entitled "Supply and Demand in ARL Libraries" (ARL 175), by Martha Kyrillidou and Kendon Stubbs, discusses some trends and highlights the need for more timely and regular information on resource-sharing activities at the national level.

A report on the 1992-93 supplementary statistics, prepared by Kendon Stubbs, was mailed to the membership. The 1992-93 supplementary statistics report highlights the growth of OPAC records, circulation, and reference transactions and shrinking serial subscriptions and library staff. It also identified a regression model for predicting circulation activity based on the number of full-time students and OPAC records.

A report on the 1992-93 E&G survey was mailed to the membership that provides four sorted tables and a summary table of means and medians by geographic region and institution type. The Program on Statistics and Measurement is working with Walter Sudmant, Office of Budget and Planning, University of British Columbia; John Cooper, Assistant Dean for Budgeting and Financial Planning, Harvard University; and Jean Loup, Assistant to the Dean, University of Michigan Library, to identify whether we can improve the comparability of Canadian E&G figures to U.S. E&G figures.

The following tables related to the 1994 Carnegie Classification were prepared for the Committee:

Table 1. Carnegie Classification for ARL Parent Institutions

Table 2. Carnegie Classification for non-ARL Parent Institutions Classified as Research I and II (sorted by Carnegie Class)

Table 3. Carnegie Classification for non-ARL Parent Institutions Classified as Research I and II (sorted by ARL Index Score)

Table 4. ARL Index 1992-93 for non-ARL Institutions

4.4.1 Committee on Statistics and Measurements

The Committee on Statistics and Measurement is working to define a research and development agenda for ARL in the area of organizational performance and effectiveness that will yield an action plan. The research agenda is to emphasize output, outcome, and impact measures. Future projects are designed around output measures with an emphasis on costs, timeliness, and quality of services. Also, understanding technological changes and how new measures can take them into account are some of the key concerns for the Committee. A document outlining strategies and projects for supporting this agenda is being prepared and will be available for review by members after the fall meeting.

SECTION 5. SUPPORTING CAPABILITIES

5.1 Governance of the Association

The capability for governance of the Association is intended to represent prudently the interests of ARL members in directing the business of the Association. The governing body is the ARL Board of Directors. The functions of the Board include: establishing operating policies, budgets, and fiscal controls; approving long-range plans; modifying or clarifying the ARL mission and continuing objectives; monitoring the performance and succession of the Executive Director; and representing ARL to the community. The staff role in this capability is to provide information to the Board adequate to fulfill its responsibilities in a knowledgeable and expeditious manner. The Board establishes several committees to help achieve effective governance of the Association.

Program and financial review. At its July meeting, the Board continued its review of the current ARL strategic plan and endorsed changes in the ARL Mission and goals/objectives. These new statements will be considered by the membership at the Fall meeting. The Board also reviewed the 1994 fiscal condition of the Association and developed a financial strategy for 1995. A corresponding dues recommendation will be presented to the membership at the Fall membership meeting.

The July Board meeting included a reception to welcome Hiram Davis to Washington, DC, as the Deputy Librarian of Congress and discussions with Sheldon Hackney, Chair of the National Endowment for the Humanities, and Jeanne Simon, Chair of the National Commission on Libraries and Information Science.

Membership Issues Activities. A Task Force on Association Membership Issues reviewed membership criteria, considered an associate membership status for independent research libraries, and considered the effect of change dues payment. A report will be discussed by members in October. In addition, the Board established a temporary committee to consider the eligibility for membership in the Association of universities with distributed campuses.

New Membership Group. The ARL Executive Committee met by conference call on August 18 and selected the ARL representatives to the newly formed ARL/AAU Coordinating Committee. This committee will serve to promote the action agenda produced as a result of the AAU Research Libraries Project. The ARL representatives are: Betty Bengtson, Jerry

Campbell, Susan Nutter, Elaine Sloan, and Robert Wedgeworth. The AAU representatives are: Myles Brand (Indiana), Harold Shapiro (Princeton), Robert Pritchard (Toronto), Donald Langenberg (Maryland), and Robert McPherson (Michigan State). The committee will meet first on October 17 in conjunction with the AAU membership meeting in Chapel Hill, NC.

Board Nominations. On August 11 Jerry Campbell, ARL President-elect and chair of the ARL Committee on Nominations, sent a request to members for suggestions of candidates to stand for election to the ARL Board of Directors. Subsequently, the Committee, including Carla Stoffle and Charles Miller, brought forth the slate of Nancy Eaton, James Neal, and Barbara von Wahlde to stand for election at the October Membership Meeting.

Status reports on standing committee and selected advisory and project group activities follow:

Committee on Information Policies:

Chair, James Neal; Staff, Prue Adler

1994 Agenda of issues: advise on the development of ARL positions, monitor and assess other government policies, and advise on efforts to strengthen ARL's capability to communicate with policy makers.

Committee on Access to Information Resources:

Chair, Nancy Eaton; Staff, Jaia Barrett

1994 Agenda of issues: reconceptualization of resource sharing in an electronic age and supporting and monitoring the bibliographic control and cooperative cataloging efforts of the Library of Congress and the emerging role of data utilities and national networks.

Committee on Research Collections:

Chair, Dale Canelas; Staff, Jutta Reed-Scott

1994 Agenda of issues: foreign acquisitions project; NCIP and the Conspectus; and analyzing the implications of electronic information resources in terms of costs, resource-sharing agreements, and institutional impact.

Committee on Preservation of Research Library Materials:

Chair, Betty Bengtson; Staff, Jutta Reed-Scott

1994 Agenda of issues: supporting mass deacidification initiatives, promoting use of permanent paper, advancing the development of a North American strategy for preservation, preservation statistics, and retrospective conversion of the National Register of Microform Masters (NRMM) for serials; shaping an ARL preservation action plan and securing support for a restructured preservation agenda; and assessing the impact of new technology on preservation.

Committee on the Management of Research Library Resources

Chair, Kent Hendrickson; Staff, Susan Jurow

1994 Agenda of issues: organizational effectiveness, human resources utilization and development, and library education and recruitment.

Committee on Minority Recruitment and Retention

Chair, Joan Chambers; Staff, Kriza Jennings

1994 Agenda of issues: develop strategies to pursue minority recruitment and retention.

Committee on Scholarly Communication:

Chair, Don Koepp; Staff, Ann Okerson

1994 Agenda of issues: develop ARL positions on ownership and copyright, participate actively in the e-list for various publishing matters, revamp mid-range plan for OSAP, and promote initiatives to encourage publishing electronically.

Advisory Committee on ARL Statistics and Measurement:

Chair, William Crowe; Staff, Martha Kyrillidou

1994 Agenda of issues: implement and monitor new questions on 1993-94 ARL Statistics and Supplementary Statistics questionnaires; monitor issues raised through participation in ALA-NCES Advisory Committee and other national groups; analyze ways to improve and redefine measures related to automation (expenditures, services, and resources); explore feasibility of a workshop, perhaps in conjunction with the Office of Management Services, on the use and presentation of ARL data; work with NACUBO and independently on benchmarks for university research libraries; and develop access measures.

Advisory Committee on the Office of Management Services:

Chair, Kent Hendrickson; Staff, Susan Jurow

Assignment: to advise on strategy development for ongoing operations, provide guidance in performance and program effectiveness assessment, and review OMS budget and financial plans.

Working Group on Scientific and Technical Information

Chair for 1994, Marilyn Sharrow; Staff Jaia Barrett

Assignment: to monitor STI developments and function as advisor to the Board for shaping further ARL activities in this area.

5.2 Communication and External Relations

The capability for Communication and External Relations is designed to acquaint ARL members with current developments of importance to research libraries; inform the library profession of ARL position on issues of importance to research libraries; influence policy and decision makers within higher education and other areas related to research and scholarship; and educate academic communities concerning issues related to research libraries.

Through print and electronic publications, as well as outreach, members of the library, higher education, and scholarly communication communities are apprised of current developments of importance to research libraries and are informed of ARL positions on issues that affect the research library community. External relations with relevant constituencies are also carried on through all ARL programs.

ARL receives information requests on a vast array of topics on a regular basis. These requests come from a variety of sources including students, educators, the press (scholarly and popular), and representatives of the information industry.

5.2.1 ARL Publications Program

The May appointment of Patricia Brennan as Information Services Coordinator allowed an extensive review of the ARL order fulfillment process, undertaken during Summer 1994. The results indicated that it is more cost effective and efficient to contract with an outside agency to manage ARL's order fulfillment. An evaluation of the publication inventory was carried out in conjunction with this process. Beginning in October all order fulfillment for the Association will be carried out by the International Fulfillment Corporation. Customer services operations will remain in-house; daily order fulfillment and maintenance of the subscription service will be consolidated for the Executive Office, OMS, and OSAP.

Plans for forthcoming publications from the ARL Executive Office are underway in the following areas: cultural diversity in ARL libraries, copyright and interlibrary loan, copyright and reserves, geographic information systems in research librarianship, redesigning interlibrary loan, and the electronic reserve room.

Newsletter. Three issues of ARL: A Bimonthly Newsletter of Research Library Issues and Actions appeared during this period. Jaia Barrett, Deputy Executive Director, and Lallie D. Leighton, Publications Program Assistant, served as editor and managing editor, respectively. During this period, the newsletter addressed such key topics as

- Copyright Principles for the Research Library Community
- New Learning Communities
- Diversity Programs in ARL Libraries
- Librarian–Publisher Dialogs
- AAU/ARL Action Agenda
- Supply and Demand in ARL Libraries
- Shaping the NII
- Electronic Serial Sites
- Future Direction of Library Access and Delivery Services

The newsletter also contained regular reports from each program and capability. Additionally, the September issue marked the beginning of a regular feature listing recent additions to the ARL Gopher.

Minutes/Proceedings of Membership Meetings. Transitions and Transformations: Proceedings from the October 1993 Membership Meeting, Part II, was published in August. This publication completes the record of the fall 1993 membership meeting and includes a report on a program session about the AAU Research Libraries Project Interim Reports, as well as a record of the business of the Association.

Proceedings from the May 1994 Membership Meeting are in production with the assistance of guest editor Allison O'Balle, Information Systems Librarian, University of Texas–Austin Library, and will be published later this fall. However, because of the high interest in the discussion of campus-wide information systems (CWIS), a pre-publication edition was made available electronically.

ARL Preservation Statistics 1992-93. The preservation statistics for 1992-93, reporting data from 114 member libraries, was published in June.

ARL Publications Program 1994-95. A complete listing of publications available from ARL was published in September.

Association of American Universities: Reports of the AAU Task Forces. In May ARL published the reports of the three AAU task forces as the first step in the follow-up action agenda endorsed by the AAU and ARL memberships in May. In an effort to ensure wide distribution on campuses, the reports have been made available at a subsidized price of $12. To date over 1,500 copies have been distributed. Additionally, it has been made available on the ARL Gopher.

5.2.2 Electronic Services

The addition of Dru Mogge as E-Services Coordinator for ARL has resulted in new exposure for ARL on the Internet. It has also provided ARL staff with a great deal of innovation and support in the use of technology to meet ARL's missions. Key achievements in these areas include:

Continued Development of the ARL Gopher

The ARL Gopher has grown a great deal in the last six months. The resources for each ARL capability have expanded to include key documents for each ARL objective. Among the resources are links to ARL member libraries, a sampling of member library vision statements, various copyright policies, federal testimony with relevance to research libraries, reports from the ARL Foreign Acquisitions Project, ARL Statements and press releases, and ARL 1992-93 machine-readable Statistics. Electronic versions of the AAU Task Force Reports and the Directory of Electronic Journals, Newsletters and Academic Discussion Lists are also on the Gopher. Both of these resources include implementation of full-text indexes. The ARL Gopher can be accessed at <arl.cni.org>.

Continued Development of the ARL World Wide Web Server

In addition to links to ARL member libraries and statistics data, the ARL Web Server now offers access to the Reports of the AAU Task Force. Each document in the report has been converted to html, and links between the various sections are in place. Accompanying figures, mainly graphs and tables, have been scanned and are linked to the text. Beth King, OSAP Research Assistant, contributed a great deal to this project.

With restricted access to a private home page, the ARL WWW Server will also function as a work area for members of the ARL Working Group on Networked Resources. Working Group members can utilize the Web to compare and contrast various archives of electronic documents by clicking on the resource name <URL: http://arl.cni.org>.

Hardware/Software Inventory & Evaluation

An inventory of hardware and software for ARL is complete. The data was compiled and developed into a database. The inventory database will serve as a key tool for evaluation and planning for computing and information technology at ARL. In addition, a questionnaire was distributed to ARL staff to ascertain whether individual needs are being met. The results of the questionnaire and database will serve as the basis for a comprehensive technology plan for ARL.

Management of ARL Electronic Discussion Groups

As of mid-May, management and administration for the 25 electronic forums sponsored by ARL has been brought in-house. Several of the lists are moderated and require daily maintenance.

Technology Support for ARL Staff

Ongoing computer support for ARL staff has continued. Due to the variety of skill and comfort with computers, support is conducted on an as-needed, one-to-one basis. The scope of support varies from diagnosing and trouble-shooting hardware and software problems to increased functionality of software applications through training and documentation. In addition to direct support, consultation regarding the technical aspect of various projects has been contributed.

5.3 ARL Membership Meetings

ARL convened the 124th meeting of its membership May 18-20 in Austin, Texas. The program addressed how new electronic technologies are precipitating dramatic changes in research, instruction, and the character of research libraries supporting those functions. Representatives from 108 member libraries were warmly welcomed by Harold Billings, Director of the Perry-Castaneda Library, and Robert Berdahl, President of the University of Texas.

An opening session at the UT Supercomputer Center featured special presentations of two multi-media teaching tools. This was followed by a panel of scholars and researchers working at the cutting edge of technology and a panel of professionals from three adjunct areas of librarianship: public and special libraries and graduate library education.

A series of Research Library Showcases featured presentations on cutting-edge activities being led by libraries, including initiatives in teaching/multi-media, electronic online journals, an electronic studio, leadership in a citywide community information network, an electronic information training program, and technology services through team building. The showcase libraries were Iowa, North Carolina State, Rice, Southern Illinois, Texas, and Wayne State.

An early morning session on Campus Wide Information Systems sparked considerable interest in different approaches to CWIS management. The concluding session focused on the recently issued reports of the AAU Research Libraries Project, with leaders in higher education convened in panels to address the proposed action agenda for shaping the transformation of research libraries and scholarly communication. The meeting culminated in unanimous membership endorsement of the strategies proposed by the AAU study and a mandate to proceed apace with implementation

Proceedings of the meeting are being prepared with the assistance of guest editor Allison O'Balle, Information Systems Librarian, UT–Austin Library, and will be published by ARL this fall.

The title of the 125th meeting of the Association is Renewing the ARL Agenda. It will take place October 19-21 in Washington, DC. The program will highlight ARL's responses to environmental trends and issues

5.4 International Relations

The International Relations capability is designed to monitor activities, maintain selected contacts, identify developments on issues of importance to North American research libraries, and share experiences of North American research libraries that may contribute to the development of research libraries internationally. This capability draws on staff and projects across several ARL programs. As with scholarly relations, international relations represents a capability that is manifested by activities in several separate program areas rather than through a consolidated office.

Jutta Reed-Scott represents ARL to the National Coordinating Committee on Japanese Library Resources. The committee's mission is "to mobilize the resources of information providers, information users, and funding organizations toward the long-range goal of creating a comprehensive national system of cooperative collection, development, and ready access to Japanese information in as wide a range of fields as possible for all current and potential users in North America."

Prue Adler served as the ARL representative on the Department of State Advisory Panel on International Copyright of the Advisory Committee on International Intellectual Property, addressing GATT, WIPO Copyright Program, and related issues.

The ARL Office of Research and Development is involved on several levels with international analyses and collaborations, including projects on foreign publications and Latin American Studies and the Japanese Research Resources and International Linkages projects that are in the planning stages.

The 60th IFLA General Conference was held August 21-27 in Havana, Cuba. Illinois Director Robert Wedgeworth convened the conference as the IFLA President. Attendance exceeded 1,400, and a strong U.S. delegation of over 100 were active participants. ARL Executive Director Duane E. Webster gave a paper at the general research libraries section on the Mellon study, and a number of staff from ARL member libraries contributed papers in other sessions. An invitation was extended by U.S. associations to IFLA to hold the General Conference in the U.S. in 2001. The 1995 IFLA General Conference will be held August 20-26, 1995, in Istanbul, Turkey. Fifty-seven ARL member libraries belong to IFLA.

5.5 General Administration

General Administration encompasses overall coordination and management of the Association, program planning and strategy development, staffing, financial planning and strategy, space planning, fiscal control, and secretarial support and office operations.

Financial status as of August 1994 The 1994 ARL Budget approved by the Board projects a balanced fiscal plan for all funds combined that includes revenue of $3,070,000 and expenditures of $3,055,000. The Executive Office is fully staffed (11 FTE professionals and 10 FTE support staff), and the eight-month financial report indicates expenditures are 4 percent higher than budgeted. Securing the Delmas Grant to support the minority recruitment capability allows us to conform to the approved budget for staff costs. Revenues are well ahead of goals due to early receipt of member dues, successful cost recovery from new initiatives such as the Electronic Book Reserve Workshop, and the indirect cost rate paid by the Coalition

for Networked Information. Revenues for 1994 are expected to match Executive Office expenditures by year-end. The Office of Research and Development has a $10,300 deficit as of August 31 but is expected to finish the year with a balanced budget. The Office of Management Services has a $13,000 surplus as of the end of August. Overall, the goal of a balanced budget with an allocation to the permanent reserve is achievable.

ARL 1995 financial strategy. The ARL Board of Directors recommends a dues increase for 1995 of $750 to a level of $13,350. The 1995 dues recommendation is the outgrowth of a Board-directed strategic planning effort and takes into account moving forward on initiatives like the AAU Research Libraries Project, as well as maintaining ongoing core programs. The recommendation increases support for the second year of the minority recruitment capability; provides a merit-based salary adjustment for ARL staff; meets the increased costs of office operation; and continues new directions recommended by several committees.

The Board is establishing a multi-year strategy to assure support for priority activities. The current ARL financial strategy is a direct outgrowth of the work of the 1989 Financial Strategy Task Force, which formed the basis for major financial decisions over the past five years and set a course for annual incremental increases, a continuing commitment to building a reserve fund to support innovative projects, and membership approval of new programs.

Personnel resources. Important changes are taking place with the ARL staff. Martha Kyrillidou was added to the Statistics/Measurement program. Dru Mogge was added to OSAP and the Executive Office as Electronic Information Services Coordinator. Patricia Brennan was reassigned to publication services and federal relations (in part to replace the role played by Brigid Welch and to provide added support to federal relations). Kriza Jennings was redeployed to operate the new minority recruitment capability part-time in addition to her ongoing role with the OMS diversity program. Publications order processing is in the midst of a reorganization that will consolidate responsibility for all ARL publications in one unit and draw upon external contractors for inventory management, order fulfillment, and shipping. Part-time staff were discontinued (Diane Harvey) or reduced in hours (Nicky Daval). The OMS began recruitment for a replacement of Brigid Welch and restaffing of the vacant junior trainer slot.

EURAM Building. The new ARL offices include a conference room that attracts higher education groups to come to ARL for important discussions. ARL is now in a position to provide member directors with the use of an office when in Washington, DC. With advance notice, the conference room will also be made available to ARL directors.

SECTION 6. RESEARCH AND DEVELOPMENT

The ARL Office of Research and Development consolidates the administration of grant-supported projects. The major goal within this capability is to identify and match ARL projects that support the research library community's mission with sources of external funding. The ARL Visiting Program Officer project is also a part of this capability.

Overview of Activities

Collections and Preservation Projects

- National Register of Microform Masters (NRMM) RECON Project for Serials
- Scholarship, Research Libraries, and Foreign Publishing in the 1990s
- Preservation Microfilming Guide: Preparation of a Second Edition

Measurements Projects

- ARL Statistical Analysis Capability
- Benchmarking: A Pilot Project

Transforming Library Services Projects

- Latin American Demonstration Project
- GIS Literacy Project
- North American Interlibrary Loan and Document Delivery Project
- AAU Research Libraries Project

Minority Recruitment Project

- Minority Recruitment Capability at ARL

6.1 Office of Research and Development

All ARL program officers play roles in the development of project concepts and funding contacts. The Office of Research and Development was established to provide the Association with a point of coordination for grant-seeking activity and idea management. The ORD also provides a consolidated picture of ARL activities that are operated with "soft" funds.

6.1.1 Developmental Priorities

Development of projects/sources of funding to support the following goals:

- Develop performance measures for research libraries
- Encourage electronic publication of research resources
- Encourage electronic access/delivery of research resources
- Increase minority hiring and retention in research libraries.

Projects Under Discussion

ARL Statistics and Measurements Program

Development of a study that examines deployment of staff, with an emphasis on identifying tasks and activities performed; development of an interface for interactive data analysis on the WWW. See Section 4.4. (Contact: Martha Kyrillidou/Jaia Barrett)

ILL and Document Delivery

Discussions have been held with the Council on Library Resources to develop projects to measure the performance (including costs) of ILL. Exploration of additional funding from the Hewlette Foundation is underway to support the design, development, and testing of materials useful for a library to reconceptualize their ILL/DD services, develop performance measures, and implement these new services. (Contact: Mary Jackson/Jaia Barrett)

Follow-up Projects from AAU Project

AAU Task Forces have recommended activities to demonstrate, test, or follow up on project recommendations. Projects under development are:

- German Social Science resources (Contact: Jutta Reed-Scott)
- Japanese Language Scientific resources (Contact: Jutta Reed-Scott, Jaia Barrett)
- University–faculty management of intellectual property (Contact: Ann Okerson)
- The deposit of publicly funded STI and the role of U.S. science agencies (Contact: Ann Okerson/Jaia Barrett)
- Establishment of a system of national repositories for electronic STI (Contact: Ann Okerson/Jaia Barrett)

Recruitment to Careers in Research Libraries

OMS is working with colleagues at Indiana University on development of a recruitment video with a capability to customize it for local uses. (Contact: Susan Jurow)

Diversity Partnerships: Minority Recruitment to Graduate Library Education

The OMS Diversity Program, working with the ARL Minority Recruitment Task Force, has undertaken an initiative to establish stronger ties between library and information science programs, libraries and library associations, consortia, and networks. The establishment of such partnerships with library school faculties would strengthen diversity and recruitment strategies within library education graduate programs. The purpose of the partnership is to increase the number of people from underrepresented groups in ARL libraries. To date, both the Ford Foundation and the AT&T Foundation have declined

support for such a program. However, see section 4.3 of this report for a description of the OMS partnership program being self-financed by library education programs. (Contact: Kriza Jennings, Susan Jurow)

Electronic Serials

OSAP is developing a proposal to create an experimental digital library on the Internet for peer-reviewed electronic serials. (Contact: Ann Okerson)

6.1.2 Member Support of ARL Visiting Program Officers

The ARL Visiting Program Officer program provides an opportunity for a staff member in a member library to assume responsibility for carrying out part or all of a project for ARL. It provides a very visible staff development opportunity for an outstanding staff member and serves the membership as a whole by extending the capacity of ARL to undertake additional activities.

Typically, the member library supports the salary of the staff person, and ARL seeks grant funding to cover travel or other project-related expenses. Depending on the nature of the project and the circumstances of the individual, a Visiting Program Officer may spend extended periods of time in Washington, DC, or they may conduct most of their project from their home library. In either case, contact with ARL staff and a presence in the ARL offices is encouraged, as this has proved to be mutually beneficial for the VPO and for ARL. To discuss candidates who might contribute by serving as a Visiting Program Officer, contact Jaia Barrett.

During the previous six months, the following institutions have supported ARL Visiting Program Officers:

Brigham Young University: Mark Grover, to serve as Project Coordinator for the ARL/AAU Latin American Demonstration Project, with Jutta Reed-Scott.

Harvard University: Dan Hazen, for a Latin American Studies Assessment Project, with Jutta Reed-Scott.

Kentucky: Gail Kennedy, to review the range of activities and efforts relating to Total Quality Management and continuous improvement that are being undertaken in academic and research libraries, with OMS.

Laval University: Pierre Guilmette, to assist with the Foreign Acquisitions Project, with Jutta Reed-Scott.

Louisiana State University: Stanley Wilder, to study the demographic characteristics of library professionals by comparing 1990 salary data to 1994 salary data, with Martha Kyrillidou.

University of Pennsylvania: Mary E. Jackson, to support the work of the Interlibrary Loan and Document Delivery Subcommittee of the ARL Committee on Access to Information Resources, with Jaia Barrett.

Additional issues where VPO contributions would be particularly welcome include minority recruitment (see Kriza Jennings) and the library role in the management of scientific and technical resources (see Jaia Barrett). There are also opportunities for librarians to contribute to ARL's activities in areas of federal relations and information policy (see Prue Adler).

Summary of May 1994 – October 1994 Project Activities

Collections and Preservation Projects

6.2 National Register of Microform Masters (NRMM) RECON Project: Serials

In December 1993 the National Endowment for the Humanities, Division of Preservation and Access, awarded ARL a new grant for the first phase of the NRMM RECON Project for Serials. ARL, in partnership with Harvard University Library, the Library of Congress, and New York Public Library, will coordinate this institution-based, distributed project. The goal of the project is to convert the 29,522 NRMM serials records that are held by the three participating institutions and that are not yet available in the OCLC or RLIN databases, creating both bibliographic and holdings records in machine-readable form. Together, the three institutions hold close to 50 percent of the estimated 60,000 serials in the NRMM Master File. This 18-month project is being carried out under the overall management of ARL. The three participating institutions are responsible for preparing their reports and for validating their holdings to allow inclusion of exact holdings information. The Library of Congress is also responsible for the quality assurance program. Under contract with the OCLC RETROCON services, the serials records will be input in the CONSER database. Records created under the auspices of this project will meet the requirements of the ARL Guidelines for Bibliographic Records for Preservation Microform Masters, as well as the CONSER guidelines. The project is scheduled to be completed by July 1995.

6.3 Scholarship, Research Libraries, and Foreign Publishing in the 1990s

This ARL project is directed toward developing a clearer understanding of the forces influencing North American research libraries' ability to build collections of foreign materials. Its long-term goal is to mobilize major segments of the higher education community, including research libraries, in developing effective strategies and the resources needed to address scholars' foreign information needs. Support for the project is provided by The Andrew W. Mellon Foundation. The ARL Committee on Research Collections is serving as Project Advisory Committee.

Project accomplishments to date include:

- Participation of all major foreign area library committees in the analysis of needs in foreign acquisitions. Special task forces have completed assessments of the state of acquisitions, analysis of international publishing output, and research trends for all major world areas. Task force reports have been prepared by the African Studies Association's Africana Librarians Council; the Association for Asian Studies, Committee on East Asian Libraries (CEAL); the Association for Asian Studies, Committee on Research Materials on Southeast Asia (CORMOSEA); the American Library Association, Association of College and Research Libraries, Western European Specialists Section (WESS); the Seminar for the Acquisition of Latin American Library Materials (SALALM); and the Middle East Librarians' Association. The Association for Asian Studies, Committee on South Asian Libraries and Documentation (CONSALD) is still completing its report.

- Completion of five pilot test studies that targeted foreign acquisitions from specific countries: Germany, Israel, Japan, Mexico and Russia.

- Completion of a study of overseas vendors and trends in international publishing.

- Analysis of trends in foreign acquisitions based on number of titles in the LC and OCLC databases by countries in the major world areas for the past five years.

- Evaluation of the results of the task force reports by members of the ARL Foreign Acquisitions Project Task Force.

- Conducting and publishing a survey of cooperative collection development programs in foreign acquisitions in ARL libraries.

- Sponsorship with the American Academy of Arts and Sciences, Midwest Center, of two meetings to bring together scholars and foreign area bibliographers.

- Support for the work of the Association of American Universities, Acquisition and Distribution of Foreign Language and Area Studies Materials Task Force.

- Building a partnership with the Association of International Education Administrators to further the goals of international higher education.

A major thrust of the ARL Foreign Acquisitions project is to develop cosensus on strategic actions that research libraries and the scholarly community need to take to ensure scholars' access to international research materials. During the past year ARL has taken essential steps toward this goal. The key 1994 strategy is the development of three demonstration projects that will show how different world areas can be incorporated into an overall program of distributed access to and delivery of foreign acquisitions. The final phase of the ARL Foreign Acquisitions Project is intended to develop consensus on the overall strategy for addressing problems in foreign acquisitions.

6.4 Preservation Microfilming Guide: Preparation of a Second Edition

In late November 1993, OCLC awarded ARL a $8,000 grant in partial support for the preparation of the second edition of Preservation Microfilming: A Guide for Librarians and Archivists. Working with ALA Publishing, ARL will coordinate the revision of the guide, which will be published in 1995. (Contact: Jutta Reed-Scott)

Measurement Projects

6.5 ARL Statistical Analysis Capability

The Andrew W. Mellon Foundation awarded ARL $19,000 to enhance its current hardware and software capabilities to develop an in-house statistical analysis unit. See section 4.4 of this report for program plans. (Contact: Martha Kyrillidou)

6.6 Benchmarking: A Pilot Project

In October 1993, OMS was awarded $18,540 by the Council on Library Resources to test the applicability of benchmarking methodologies in an academic library environment. A single work process, the lending function in interlibrary loan, will be used as a test to analyze the approach. The project was designed and conducted by a consultant from the International Benchmarking Clearinghouse and coordinated by OMS. (Contact: Susan Jurow)

Transforming Library Services Projects

6.7 Latin American Demonstration Project

ARL was awarded $90,000 from The Andrew W. Mellon Foundation for a pilot project to establish a distributed, network-based system of Latin Americanist study. The grant was contingent on multi-institutional commitment from ARL libraries. The commitments were forthcoming from 25 libraries. The project was launched in September. A report appeared in the September 1994 ARL newsletter (ARL 176, p. 4).

6.8 GIS Literacy Project

With support from ESRI (a GIS software company), the American Geographers Association ($5,000) and a grant ($26,850) from the H.W. Wilson Foundation, Phase II of the project held a fifth GIS training session in May 1994. A focus for 1994 is networked-based sharing of spatial data. Wessex, a data vendor, has agreed to donate several new data files to participating libraries. Phase III, targeted for Canadian members, is underway. (Contact: Prue Adler)

6.9 North American Interlibrary Loan/Document Delivery Project

The project seeks to improve the quality of ILL and document delivery services through 1) collaboration with the private sector to develop priority system enhancements, 2) design of a library change strategy, and 3) development of educational material. See section 2.1.1 of this report for a summary of project activities; detailed project reports are available on the ARL Gopher. Funding for the project has been from multiple sources. The University of Pennsylvania provided ILL Librarian Mary E. Jackson with a leave of absence (May 1993 to December 1994) to serve full-time as ARL Visiting Program Officer for the project and provided partial support. The Council on Library Resources and the H.W. Wilson Foundation have also supported the project. Additional travel expenses have been covered by ARL member libraries and some of the private sector organizations participating in the project. Additional support is sought through cost-recovery activities and support from members of the Developers/Implementors Group and from the Hewlette Foundation. (Contact: Jaia Barrett)

6.10 AAU Research Libraries Project (Completed)

Project task forces met between January 1993 and spring 1994 with funding provided by The Andrew W. Mellon Foundation to support the work of this initiative. See section 1.4 for a report on follow-up activities. (Contacts: Jutta Reed-Scott, Ann Okerson, and Jaia Barrett)

Minority Recruitment Project

6.11 Minority Recruitment Capability at ARL

The Gladys Krieble Delmas Foundation awarded ARL $30,000 in March 1994 to support the establishment of a capability at ARL to recruit minorities to careers in academic and research libraries. This award, together with the dues provided by ARL libraries, positions ARL to deploy Kriza Jennings half-time to design and shape three to five recruitment projects that provide high member library involvement. See section 4.3 of this report for a summary of activity. (Contact: Kriza Jennings.)

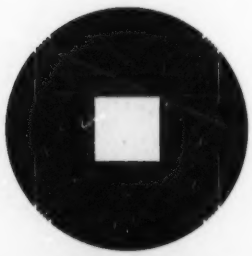
APPENDIX III

ARL ATTENDANCE LIST
October 1994

Member Institution	Represented by
University of Alabama Libraries	Charles Osburn
University of Alberta	Ernie Ingles
University of Arizona Library	Carla Stoffle
Arizona State University	Jane Conrow
Auburn University Library	William Highfill
Boston Public Library	Arthur Curley
Boston University Library	John Laucus
Brigham Young University Library	[not represented]
University of British Columbia Library	Ruth Patrick
Brown University Library	Merrily Taylor
University of California-Berkeley	Dorothy Gregor
University of California Library-Davis	Marilyn Sharrow
University of California Library-Irvine	Joanne Euster
University of California-Los Angeles	Gloria Werner
University of California-Riverside	[not represented]
University of California Library-San Diego	Gerald Lowell
University of California Library-Santa Barbara	Joseph Boissé
Canada Institute for Scientific & Tech Info	Margot Montgomery
Case Western Reserve University	Ray Metz
Center for Research Libraries	Donald Simpson
University of Chicago Library	Martin Runkle
University of Cincinnati Libraries	David Kohl
University of Colorado at Boulder	Jim Williams
Colorado State University Library	Joan Chambers
Columbia University Libraries	Elaine Sloan
University of Connecticut Library	Paul Kobulnicky
Cornell University Libraries	Alain Seznec
Dartmouth College Library	Margaret Otto
University of Delaware Library	Susan Brynteson
Duke University Libraries	Jerry Campbell
Emory University	Joan Gotwals
University of Florida	Dale Canelas
Florida State University Library	Charles Miller
Georgetown Universty Library	Susan Martin
University of Georgia Libraries	William Potter
Georgia Institute of Technology	[not represented]

Member Institution	Represented by
University of Pittsburgh Libraries	Rush Miller
Princeton University Library	Donald Koepp
Purdue University Library	Emily Mobley
Queen's University	[not represented]
Rice University Library	Beth Shapiro
University of Rochester Libraries	James Wyatt
Rutgers University Library	Frank Polach
University of Saskatchewan	Frank Winter
Smithsonian Institution Libraries	Barbara Smith
University of South Carolina	Homer Walton
University of Southern California	Lynn Sipe
Southern Illinois University Library	Carolyn Snyder
Stanford University Libraries	Michael Keller
State University of New York at Albany	Meredith Butler
State University of New York-Buffalo	Barbara von Wahlde
State University of New York-Stony Brook	John Smith
Syracuse University Library	David Stam
Temple University	James Myers
University of Tennessee Libraries	Paula Kaufman
University of Texas Libraries	Harold Billings
Texas A&M University Library	Fred Heath
University of Toronto Libraries	Carole Moore
Tulane University Library	Philip Leinbach
University of Utah Libraries	Roger Hanson
Vanderbilt University Library	[not represented]
University of Virginia	Karin Wittenborg
Virginia Polytechnic Institute and State University	Joanne Eustis
University of Washington Libraries	Betty Bengtson
Washington State University Libraries	Nancy Baker
Washington University Libraries	Shirley Baker
University of Waterloo Library	Murray Shepherd
Wayne State University Libraries	Peter Spyers-Duran
University of Western Ontario	[not represented]
University of Wisconsin Libraries	Kenneth Frazier
Yale University Libraries	Scott Bennett
York University Libraries	[not represented]

Speakers and Guests	
American Council of Learned Societies	Doug Bennett
Association of American University Presses	Peter Grenquist
Association of American Universities	Cornelius Pings
Association of American Universities	John Vaughn
Association of American Universities	Beth Matlick
Center for Creative Leadership	Carole Leland
University College London	Fred Friend
Commission on Preservation and Access	Stuart Lynn
University of Connecticut	Jan Merrill-Oldham



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